

THE
RAILWAY GAZETTE

A Journal of Management, Engineering and Operation
INCORPORATING

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CONTENTS

	PAGE
Editorial Notes	129
The Railhead of Great Britain	131
Railway Passenger Traffic in America	132
Letters to the Editor	133
The Scrap Heap	136
Overseas Railway Affairs	137
The Life of the Steam Locomotive	138
Low Range Boiler Efficiency Diagram	138
Pre-Stressed Concrete Sleepers	139
Ground Wheel Lathe	142
Personal	143
Transport Services and the War	146
The Dover Railway Centenary	147
Stock Market and Table	152

GOODS FOR EXPORT

The fact that goods made of raw materials in short supply owing to war conditions are advertised in this paper should not be taken as indicating that they are available for export

NOTICE TO SUBSCRIBERS

Consequent on the paper rationing, new subscribers cannot be accepted until further notice. Any applications will be put on a waiting list and will be dealt with in rotation in replacement of subscribers who do not renew their subscriptions

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We would remind our readers that there are many overseas countries to which it is not permissible for private individuals to send printed journals and newspapers. THE RAILWAY GAZETTE possesses the necessary permit and facilities for such dispatch.

We would emphasise that copies addressed to places in Great Britain should not be re-directed to places overseas

TO CALLERS AND TELEPHONERS

Until further notice our office hours are:

Mondays to Fridays 9.30 a.m. till 5 p.m.

The office is closed on Saturdays

ANSWERS TO ENQUIRIES

By reason of staff shortage due to enlistment, we regret that it is no longer possible for us to answer enquiries involving research, or to supply dates when articles appeared in back numbers, either by telephone or by letter

ERRORS, PAPER, AND PRINTING

Owing to shortage of staff and altered printing arrangements due to the war, and less time available for proof reading, we ask our readers' indulgence for typographical and other errors they may observe from time to time, also for poorer paper and printing compared with pre-war standards

British Railway Post-War Policy

MANY industries are being called on by the Government to make known their suggestions for post-war planning, and it would indeed be strange if a similar request had not been made to the main-line railway companies. The Editor of *The Financial News* believes that it may be assumed that the railways have been asked for their own considered views about the future, although he does not know whether they have been sent to the Government. Based on a careful reading of recent pronouncements by the railways, or those closely associated with them, he inclines to the view that the main proposals of the railways for after the war will envisage the handing back of the railways to private enterprise within a reasonable time, and that the greater part of their plan is concerned with the future earning power of the system, and the best way of safeguarding it, consonantly with the utmost safeguarding of the transport users' interest. He thinks it probable that discussions to secure a *modus vivendi* with road transport have proceeded during the war, and that the railways are more likely to have retained the main conception behind their "square deal" proposals than to have scrapped it. These involved, basically, the freeing of the railways from the shackles of statutory charging regulations and the conclusion of a working arrangement with road transport, allowing competition in service within a recognised rates framework.

Private Enterprise versus State Control

Lord McGowan delivered a trenchant defence of private enterprise as opposed to State control in a recent speech at the Glasgow Chamber of Commerce. There can be no doubt that at the present time the system of private enterprise, on which Great Britain's national pre-eminence has been built so largely, is under fire. It is subjected to a wealth of misrepresentation and innuendo designed to create the impression that the substitution of operation and control of industry by the State would usher in a new Utopia. Lord McGowan pointed out that the effective answer to much of this criticism was to give facts. Because of his close acquaintance with the company, Lord McGowan naturally cited Imperial Chemical Industries Limited in his answer to the charges launched against private enterprise. The war effort of I.C.I. began in 1935, but for some years before that it had conducted research on the extraction of oil from coal, at a cost of about £1,000,000. In 1935 the company decided to erect, at a cost of nearly £3,000,000, a large plant to produce petrol from British coal and tar which had been of the utmost value to the war effort. In a letter to *The Times* a correspondent argues that private enterprise was not responsible for this plant which he contends really owed its origin to the Government's action in exempting home-produced motor fuels from taxation. But what has the State-run Fuel Research Board produced for the expenditure of some £1,500,000 of the taxpayers' money?

A Reservoir of Talent

Lord McGowan pertinently asked: "What State department, what body of Civil Servants, what Ministers in Parliament would have dared to take the commercial risk involved in the decision which private enterprise took in 1935?" After giving other instances of the manner in which courageous action by a private undertaking had assisted the nation in a time of crisis, Lord McGowan asked: "Where do our critics think that the peacetime Government of a democracy keeps the army of experts that become necessary on the outbreak of war, not only to reorganise the production of food, as well as of industry, on a war footing, but to direct and manage the huge Governmental ministries which take the place of the routine departments of Whitehall?" In fact the cost of keeping such a force could not be borne by a Government, and the energies of men required only in war would atrophy in idleness during peacetime, instead of being kept sharp with competition as is the case with private enterprise. The great undertakings of the country whose personnel and plant have been kept up to the highest pitch of efficiency, is the only reservoir on which the State can draw in the hour of emergency. Moreover, only in the personnel of great commercial undertakings can the State find men with the necessary ability and experience of managing large scale operations of the kind required in war, and only undertakings of the largest size can serve as training grounds for Supply and Service Ministries during an emergency.

British Investments in Argentina

During the year 1943 the return on British capital invested in Argentina, as represented by the securities given in the London Stock Exchange lists, improved to 2.6 per cent. from 2.4 per cent. of the previous year. The figure though small was the

best for six years. Statistics compiled by *The South American Journal* show that the amount quoted for investments in British railways in Argentina of £260,504,007 was practically the same as in the previous year, and that £4,651,445 was forthcoming in interest. This compared with £3,686,526 for 1932, and was equal to 1.8 per cent., as compared with 1.4 per cent. Although that return is very small it is the best since 2.3 per cent. was distributed in 1937, and, indeed, was the second highest rate achieved for the past ten years. The amount of capital receiving no interest was £162,667,095, which compares with £179,159,888 for 1942; that is to say the proportion of railway capital on which no interest was paid was 62.4 per cent., compared with 68.8 per cent. in 1942.

Swiss Railway Rate Increases and Reconstruction

The Swiss Federal Railways Administration is understood to be the only railway management of any importance in Continental Europe to maintain its fares and rates unchanged throughout the 4½ years of the war. Now, however, modest increases are proposed, and are to be brought into force on April 1. Details are given at page 146. Even these increases do not appear to be necessitated by current operating costs, as the deficit for 1943 of fr. 25 million envisaged for the Swiss Federal Railways did not materialise, despite the reduction in transit traffic, which yielded some fr. 70 million per annum in earlier war years. This transit traffic naturally fell drastically in the second half of 1943 as a result of the changed conditions in France and Italy, and a substantial reduction in Swiss military traffic is also said to have had a marked effect. The higher yield accruing from the proposed increases in fares and rates is expected to amount to fr. 25 to 30 million per annum in the case of the Swiss Federal Railways, and this surplus is to be employed exclusively for the financial reconstruction of the railways, for which purpose it is to be paid into a special fund. The total estimated cost of the financial reconstruction of the Swiss Federal Railways is in the neighbourhood of fr. 1,300 million. Of the increased receipts of the privately-owned transport undertakings, 20 per cent. is to be paid into a special equalisation fund (to be administered jointly by the Railway Department and the private companies concerned), out of which working losses are to be covered.

Belfast & County Down Railway Company

Under the Railway Companies (Accounts & Returns) Northern Ireland Order, 1944, the report and accounts for the year 1943 are submitted in a modified form, and it is therefore not possible to give full details of the operations of the company. The following is a summary of the results compared with those of the preceding years:—

	1942.	1943.
Net receipts from businesses	£ 81,046	£ 55,561
Miscellaneous receipts, net	12,329	13,081
Total net income	93,375	68,642

In 1943 costs both of wages and supplies continued to increase, and great difficulty is still being experienced in obtaining normal requirements of materials and stores. During the year 3 miles of track were completely renewed and 3½ miles re-sleepered. After adding £2,227 brought forward and providing £14,156 for interest, rentals, other fixed charges, and A.R.P. there is a balance of £57,013. From this are appropriated £24,000 (£49,000) for taxation and £3,000 for contingencies, leaving £30,013 available for dividend. Payment of the year's dividend on the baronial guaranteed shares requires £510, and the two half-yearly dividends on the 4½ per cent. "A" preference stock take £2,250. Two years' arrears (1931 and 1932) are to be paid on the £248,141 of 5 per cent. preference stock, absorbing £24,814, and leaving £2,439 to be carried forward.

Mountain Railways in Britain

The recent approach by the Fort William Council to the Secretary for Scotland to obtain post-war support for the construction of a railway to the summit of Ben Nevis, 4,406 ft. above the sea, is a reminder of how little has been done in this country towards giving access in this way to famous view-points. Until now the rack-and-pinion steam-operated railway from Llanberis to the summit of Snowdon, 3,560 ft., and the electrically-worked Fell line up Snaefell, 2,034 ft., in the Isle of Man, are the only examples of their kind in or around Great Britain. It is not unreasonable that in every mountainous area that is popular with holidaymakers, at least one summit should be made accessible in this way, and the principal obstacle to such mountain railway construction doubtless has been the somewhat exaggerated apprehension as to the defacement of scenery that might be caused in this way. Judging by Alpine experience, there need be little fear that any such project, in a well-patronised tourist centre, would fail to pay its way; the Fort William Council estimates, for example, that the present

4,000 climbers who make their way on foot up the mountain annually would be multiplied at least by ten if a railway were available. The proposed line would start at a point between Fort William and Spean Bridge, and would make its way up the Carn Mhor Deargh shoulder of the mountain, with a length upwards of 6 miles, and an estimated cost of £30,000; the motive power would be electricity.

Asphalt Roads in Wartime

The issue by the British Standards Institution of a war emergency specification for rolled asphalt suitable for road construction and maintenance under emergency conditions comes at an opportune time, coinciding with the news that asphaltic bitumen is to be released in sufficient quantities to enable local road authorities to tackle the problem of road maintenance during the coming spring. By reason of war conditions, many roads throughout the country have been subjected to drastic forms of traffic far beyond their capacity, and others have long outlived their period of maintenance. For this reason, engineers and surveyors should welcome this lead by the B.S.I. The Standard, which has been drawn up in conjunction with the Asphalt Roads Association, provides a clear issue both as regards the use of available local aggregates to obviate unnecessary transport, and also the composition of the asphaltic cementing agent, giving at the same time a certain amount of tolerance for the easy and efficient interpretation of the three main types of mixtures provided for in the specification. Further reference to this Standard, copies of which may be obtained on application (price 2s.) from the British Standards Institution, 28, Victoria Street, London, S.W.1, is made at page 146.

Danish Railways' New Staff Magazine

Practically all railway administrations have for many years issued their own staff magazines, intended to provide the staff with news of what is going on on their railway, furnish technical and other information on railway working, and assist in promoting the welfare of the undertaking, and those serving it. A great deal of interesting information has been presented in this way and the back volumes of these magazines are of considerable use at times to the railway historian. Some railways have made the instructional side of their magazines particularly prominent, or have published two journals, one general, the other special in character. We noticed not long ago the appearance of the first issue of the Swedish railways' magazine and now it is announced that, despite the great difficulties of the present time, the Danish State Railways have commenced publication of their own journal. They have no lack of interesting facts and conditions to treat in its pages, as the railway system of Denmark offers many special features, due to the topography of the country, little encountered elsewhere. We can only wish our new contemporary every success and a speedy return to the days of free interchange. An independent technical paper already exists in Denmark.

Middle Drove Crossing Accident

The fatal accident which occurred on October 11, 1943, at Middle Drove level crossing, L.N.E.R., when an express, travelling at speed in a thick fog, destroyed a private motor car, was due to the gatekeeper failing to hear the block telegraph repeating bell and allowing the car to cross while the express was in section. Colonel Trench's report on the occurrence is summarised at page 148. The gatekeeper was stationed in a hut 75 yd. distant, so that there was some likelihood of the block bell signals being none too noticeable, and, as is well known, fog can play strange tricks with the transmission of sound. He had, however, heard the signals for another train not long before. He ought to have used the telephone from the gatehouse itself before opening the gates, as visibility was so bad. Although laying the responsibility for the collision, which caused three deaths, on the gatekeeper, Colonel Trench considers the addition of indicators in the block circuit advisable, and that some protection should be provided for the man alongside the crossing so that he can be stationed close to the bell and not have to listen for it at a distance. The legal status of the crossing is somewhat obscure but it has been staffed for many years.

Power Track Tools and Safety

The increasing use of power tools in permanent way maintenance work is arousing concern as to the safety of the gangs so equipped while their work is in progress. Power ballast tampers, especially when several are used simultaneously, and also the rivet hammers, scrapers, and other power tools that are now used in bridge maintenance jobs, not only deaden the sound of approaching trains, but also set up vibrations which

interfere with the normal sense of hearing of the men using them. In perfectly clear weather, a section gang of the Cleveland, Cincinnati & St. Louis Railroad was surfacing track near Ohlman, Illinois, with light pneumatic tampers in operation simultaneously and the air compressor hard at work close by, when it was run into by an express train, and nine men were killed. The line at this point is straight for 5 miles, and level; the driver, who was travelling at 65 m.p.h., saw the gang 1,400 ft. away, sounded his hooter continuously, and then made an emergency brake application which reduced the speed to 30 m.p.h., but too late to avoid the accident. Because of the relative infrequency of traffic over this route, a look-out man had not been posted, for it is considered in the United States that in such conditions the foremen of small gangs should be able to protect their own men. On multiple-track or high speed lines look-out men are considered essential, but where power tools are in use it is considered that the warning signal should be a distinctive or unusual sound, such as a high-pitched and piercing whistle, to ensure its being heard above the machine noise.

The Baker Valve Gear

Of the discussion originally started by the publication in our issue for June 11, 1943, of an article on the Baker valve gear we have heard only a small part; recognised authorities on valve gears have been asked many questions and, presumably, have given as many answers. On page 134 of this issue we publish a communication from a correspondent, well known in locomotive engineering circles, who has gone to a great deal of trouble to satisfy inquiries on this particular subject; his drawings clear up a number of obscure points and make apparent one very considerable drawback, namely, the necessity for a power-operated reversing mechanism. In America, power reversing is obligatory, so that this requirement does not act as a deterrent to the use of the Baker gear, but in other parts of the world a preference will naturally be felt for a gear such as Walschaerts that can be hand operated. A minor drawback is the considerable and invariable angularity of the valve rod in relation to the valve stem.

Life of Steam Locomotives

Some locomotives seem to bear a charmed life; they continue hard at work whilst their newer and in many cases more conspicuous fellows quickly run through perhaps more varied, but briefer, careers. We still see Mr. Johnson's 0-4-4 tank engines at St. Pancras, though the much more massive and spectacular 4-6-4 "Tilbury" tank engines have now vanished. This is but one example of many which spring to mind. Perhaps, however, the "old" engines are not in every way as old as they seem: they may be sporting their third boiler and third cylinder casting, and even that third boiler may be replete with a second set of tubes. With this in mind, one is inclined to ask how far it is economically justifiable to pursue such a policy of renewal. We ask ourselves whether it would not be possible to aim at producing an engine which would retain all its principal original components—boiler, frames, cylinders, wheel centres, etc., throughout its whole existence, and if so, whether such a policy would not be better than one which envisaged a new boiler, say, every 12 years, new cylinders every 16 years, and so on. In an article on this subject (p. 138) the achievement of the Chesapeake & Ohio Railway in increasing boiler life approximately to that of the engine is mentioned as pointing the direction for future developments.

Accent on Youth

Recent pronouncements by educational authorities and a conference attended by young persons for instruction in current affairs show that emphasis is to be placed on the contribution expected of youth towards the shaping of national policy. If this trend should result in their teachers "catching 'em young" enough, future generations doubtless will tend to take their youthful pleasures sadly. In our young day, the boy with a sporting turn of mind became Jack Hobbs when he faced the bowler, and boys and girls delighted in playing at pirate kings or fairy queens; but will our more sophisticated children rather rejoice in imagining themselves to be General Montgomery, Sir William Beveridge or Lady Astor? In the railway sphere, it is doubtful whether the youth whose daydreams once would have centred on the engine driver, in spite of the fascination and the skill and responsibility demanded, will be content to imagine himself in that grade of the railway service. He will probably require the rank at least of a district officer, although many will be content to assume at once a general managership. For those whose inordinate ambitions should scorn the control of a single railway, there would be always available the chairmanship of some grand imaginary "R.E.C.," or the post of Controller of Railways in a Ruritanian Ministry of Transport.

The Railhead of Great Britain

AS the nearest port to the European Continent, Dover has occupied a key position from ancient times, and this position, which remains almost unassailed (despite the development of aviation), has rendered it a peculiarly vital traffic centre. With the coming of railways, its importance was still further enhanced, for Dover became, in effect, the railhead of Great Britain. It is significant of the part it played in war transport that the war memorial of the South Eastern & Chatham Railway was placed in Dover Marine Station instead of at one of the London stations. The railways leading to such a strategic point are, naturally, of exceptional interest, and it is proper that the Southern Railway should have marked the occasion of the centenary of the first railway to link Dover with the Metropolis, which fell on Monday last, although war conditions make adequate celebration impracticable. Rail connection between Dover and London was established by the South Eastern Railway on February 7, 1844, when it opened (from Folkestone) the final section of its original main line to Dover Town Station, at first called simply "Dover." This was situated just to the west of the site of the Lord Warden Hotel.

The original route was from London Bridge, taking the circuitous course *via* Redhill, as Parliament in its wisdom had decreed that there should be but one London railway exit to the south. From London Bridge the rails of the London & Greenwich Railway Company were used to Corbett's Lane Junction; and then those of the London & Croydon Railway Company to Norwood Junction. From the last-named point, various routes were considered, and the original Act of Parliament authorising the South Eastern Railway (which was passed on June 21, 1836) sanctioned a line through Oxted to Edenbridge, similar to that built nearly half a century afterwards as the Croydon & Oxted Joint Line. Three years later a Deviation Act was passed, whereby the 12 miles of the authorised London & Brighton Railway between Norwood Junction and Redhill (in early years called Reigate) became, in effect, a joint line. It was built by the L. & B.R., but that company was required to convey the southern half to the S.E.R. at cost price, and the whole 12 miles were used by both companies without paying toll to each other. The adoption of this circuitous route made the distance between Croydon and Dover 76½ miles instead of 69½ miles as planned *via* Oxted. On the other hand, it provided a straight and easily-graded line from Redhill to the sea.

The obvious route between London and Dover *via* North Kent, on approximately the line of the Roman Watling Street, which had been considered as early as 1825, clearly needed railway occupation sooner or later. Eventually this came from the East Kent Railway, which was formed in 1853 to provide a link between Strood (the terminus of the North Kent line of the S.E.R.) and Canterbury. Within a very short time this local undertaking blossomed forth as the London, Chatham & Dover Railway Company, promoting a head and tail to London and to Dover respectively, using a heavily-graded route. The first approach to London was made *via* the Crystal Palace to Victoria, using the lines of a series of local undertakings, and a through service between Victoria and Canterbury was established on December 3, 1860, together with a 4-horse bus service between Canterbury and Dover. Space precludes a detailed account of the variations in the approach lines in the London area, but the principal particulars are shown on our "historical" map, page 140.

Reverting to arrangements in the Dover area, it should be recorded that in 1861, by agreement between the Admiralty and the S.E.R., the railway line was extended to connect with rails laid by the Admiralty on the Admiralty Pier, and the Admiralty agreed to permit the railway to run its trains on to the pier lines in connection with the arrival and departure of cross-Channel steamers. By 1861 the London, Chatham & Dover Railway was rapidly approaching Dover from Canterbury, and on July 22 of that year was opened to a temporary terminus at what is now the Priory Station. It was then named Dover Town, but was renamed Priory after the adjacent ruins of St. Martin's Priory, and the designation "Town" was adopted by the S.E.R. station. Between the Priory and the shore it was necessary to drive a 685-yard tunnel; this was completed a few months later, and on November 1, 1861, the L.C. & D.R. was extended to the Harbour Station. Arrangements were made in 1862 to effect a junction with the Admiralty Pier line, and, from the opening of this on August 30, 1864, boat trains of both companies used the pier. For seven years a substantial advantage in distance (though not in gradient) lay with the L.C. & D.R., but the opening in 1868 of the S.E.R. Tonbridge direct line, *via* Sevenoaks, secured equality, the L.C. & D.R. 78 miles from Victoria to Dover Harbour being matched by the S.E.R. 76½ miles from Charing Cross to Dover Town. An important local development was the opening on June 15, 1881, of a direct connection between the S.E.R. Town and the L.C. & D.R. Harbour stations. This was a joint line of the two companies, built as part of the

Dover & Deal Joint Railway, and the spur between the two Dover stations completed a triangle with the two approaches to the pier.

The next step was the establishment of a new station on reclaimed land in the harbour alongside the Admiralty pier. Many important harbour works were undertaken in the closing years of last century, and the new Marine Station was included in the scheme. The first of the new works to be completed was the Prince of Wales Pier, opened in 1902. A station was arranged on it by the Dover Harbour Board, and this was used spasmodically until 1914 for handling liner traffic, but has not since been used for that purpose and most of the platform has now been demolished. The Marine Station was nearing completion when war broke out, and from January 2, 1915, onwards was used for ambulance and other military traffic. Most of this approached by the L.C. & D.R. route, as the Folkestone landslide of December 19, 1915, closed the S.E.R. route until August 11, 1919. Public use of the Marine Station (for Continental traffic) began on January 18, 1920; an ordinary L.C. & D.R. section train was introduced in the following October, and full service in July, 1921; and S.E.R. section trains ran into the new station from February, 1922, onwards. Since grouping, the whole character of the railway layout at Dover has been changed and simplified. Passenger traffic for Dover itself is now concentrated on the Priory Station, which was rebuilt in 1932, and is now one of the most modern stations of its type. The old Town and Harbour Stations have been demolished, and the approach lines to the Marine Station remodelled.

The opening of the new train ferry, which took place on October 14, 1936, marked a further notable advance in the history of Dover, enabling a service of through sleeping cars to be established between London and Paris *via* Dover and Dunkerque. Such an idea was not new, and may, in fact, be dated back to 1862, when Mr. Evan Leigh exhibited models of a train ferry at the International Exhibition at South Kensington. Sir John Fowler propounded an English Channel train ferry scheme using steamers similar to those suggested by Mr. Leigh. Despite various objections, including the opposition of the British Admiralty on the grounds of national defence, Sir John Fowler continued to advocate his scheme in and out of Parliament. He was joined by Scott Russell, the famous naval designer, and together they secured the passage of a Bill through the House of Commons in 1870, which was dropped because of the Franco-Prussian War. After that war, the Bill again passed the Commons, but was rejected by the House of Lords by the casting vote of the Chairman of Committees, so Sir John Fowler abandoned his plans. Lord Armstrong and Sir William White evolved a further scheme in 1883, and pursued it for more than 20 years, eventually promoting a Bill in 1905 to incorporate the Channel Ferry Company, which Parliament rejected.

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Railway Passenger Traffic in America

DURING recent weeks there has been a lively argument in our correspondence columns about American train travel and the opinion held in some quarters that our railways should imitate American methods. Opportunely we have just received a special number of our contemporary the *Railway Age* which contains a comprehensive survey of passenger traffic developments and prospects in the United States. We are sure that our readers will like to know what the Americans themselves think of the wartime performance of their railways and what their ideas are about improving passenger business after the war. Between the two world wars passenger train earnings declined so rapidly that on some lines the services were considered as unprofitable. War conditions have now filled the trains to overflowing and the railways are naturally planning to retain for good as much as they can of this temporary patronage. Though the post-war problem in America will differ in many respects from the questions which will arise in this country, an account of the situation over there may bring out some points worth pondering over.

There is general agreement that the American railways handled a phenomenal traffic last year in an efficient manner. It is estimated that 80,000,000,000 passenger miles were worked—almost twice as many as in the pre-war record year of 1920 and three-and-a-half times as many as in 1939, the year before America entered the war. Yet the railways had only half the number of passenger locomotives and two thirds of the number of passenger coaches that were available in 1920. A third of the railway coaches and one half of the Pullman cars are required for troop movements. Since Pearl Harbour an average of more than 1,000,000 servicemen in group movements have been carried monthly by rail. Many trains are consequently overcrowded and many are late. Dining cars are no longer supplying elaborate menus and on many long-distance trains in the West

the mid-day meal has been replaced by a carton lunch served at the passenger's seat. Large numbers of passengers have to endure greater discomforts and inconvenience, but the public recognise that priority must be accorded to Government traffic.

The railways are waging an energetic advertising campaign against "joy-riders" and have been asked by the Office of Defense Transportation to do all they can to forestall the rationing of passenger travel. Mr. J. B. Eastman, Director of the Office, takes the view held by our Ministry of War Transport that rationing is not feasible. This year traffic is expected to be 20 per cent. heavier than it was in 1943 and the railways will have difficulty in getting more service out of their rolling stock. Last summer 86 per cent. of the passenger locomotives were in action, running 226 miles a day on an average as compared with 186 miles a day during the summer of 1939. The use of passenger coaches has been intensified until their average daily mileage has touched 293, thanks in some measure to the Passenger Car Section of the Car Service Division constituted by the Association of American Railroads to deal with the emergency.

Since 1935 high-speed streamlined trains have been installed on the American railways to the number of 120. Most of the streamliners were additions to the ordinary timetables, but 19 or 20 consisted of light-weight equipment substituted for heavy coaches on well-known trains such as the Twentieth Century Limited of the New York Central and the Broadway Limited of the Pennsylvania which furnish rival services between New York and Chicago. For the duration, we are told, America's streamliners will operate on a strictly utilitarian basis and will carry a disproportionately larger percentage of the total traffic because their fast schedules appeal to men on furlough from the forces and to people engaged on war work. Some of these crack trains make a large mileage. The two Rocky Mountain Rockets of the Chicago, Rock Island & Pacific, consisting of seven coaches, each cover 1,084 miles daily between Chicago and Denver. Over the Chicago & North Western and Union Pacific lines two trains of 11 coaches, styled City of Denver, run 1,048 miles a day between the same cities and a third service is given by two Denver Zephyrs of the Chicago, Burlington & Quincy running 1,037 miles daily with 12 coaches apiece. Over the three routes about a quarter of a million passengers are carried annually between the two important producing centres of Chicago and Denver, and the two Colorado Eagles of the Missouri Pacific cover 1,011 miles a day, with 8 coaches, between St. Louis and Denver. Feats of that description are the high lights of railway passenger transport in the States, a land of vast distances with a low density of traffic save in certain of the eastern regions.

In the short period of seven years diesel-electric power has made a noteworthy advance in America. In 1936 steam locomotives worked 95.5 per cent. of the total passenger locomotive mileage; electric locomotives accounted for 4.1 per cent. and the diesel engine for less than one half of one per cent. Last year the proportions were:—

Steam	85.5	per cent.
Electric	5.2	" "
Diesel	9	" "

No more streamlined light-weight trains will be built during the war, but the future of the diesel-electric locomotive is thought to be assured so far as America is concerned. Conditions there give the new prime-mover advantages over both steam and electric traction on many railway systems. Its inherent capacities are summed up by its advocates as consisting of high-speed, high-starting capacity, high availability, long runs without service stops, and low operating cost. Where the electric locomotive scores is in territory with a dense traffic and stiff grades.

So much for American travel during the war. What of the future? The *Railway Age* has sounded officers of the railways handling passengers in large numbers and records the following conclusions:—

(a) The railways appreciate that most of their existing passenger equipment is outmoded and plan to modernise it after the war.

(b) Many railways plan to increase the number of streamliners so as to add the appeal of frequency of service to the advantages of comfort and speed in competition with the highway and air transport.

(c) A majority of the railways favour a reduction in passenger fares immediately after the war and some of them would like to make the cut at once in order to hold the customers who have been gained during the emergency.

Of these conclusions, (a) and (b) seem to be natural developments. We confess, however, to some surprise at the strong feeling in favour of lowering fares. One railway officer went so far as to say that ordinary coach fares should be reduced to one cent a mile universally. Before the war the average revenue from a passenger, taking all classes into account, was

1.839 cents compared with over 3 cents in 1920. The average figure has fallen further during the war owing to the great increase in lower class travel. A cut in fares at present would simply invite more people to travel and cancel out the advertisements asking them to stay at home and not use trains. The question of fares after the war might prudently be allowed to wait until it is seen how wages and prices are going to be stabilised. If an improved service is contemplated when peace returns, the American public will surely be willing to pay reasonable charges for their tickets. The cost of new equipment is bound to be heavy and, if high-speed passenger train services are extended, large expenditures will be entailed on reducing curves and strengthening tracks. Possibly some of the enthusiastic passenger officers are forgetting that the net revenue from their business is what finally counts. To restore the "glamour" of railway travel sounds a fine project, but the price of the restoration may easily be too high.

We heartily congratulate our American contemporary on the issue of their fifth annual survey of passenger travel. This special number of the *Railway Age*, dated November 20, makes good reading and all its statements are supported by plentiful statistics. The numerous illustrations are well chosen and excellently reproduced.

Damage to Railway Property

AT the present time the railway companies are suffering from the activities of irresponsible persons who, acting on some urge difficult to understand, damage the interiors of compartments in many different ways. The railways always have been

the objects of attention of these abnormal persons, but now that there is a shortage of certain types of goods, together with a general loosening of the normal sense of things, the ravages have increased. The most common forms appear to be pilfering of carriage window straps by cutting them off near the top. When the straps were of leather they could be used in a variety of ways but principally for razor strops. Now that they are all made of some rough woven material it is suggested that by cutting them diagonally they can be used for the repair of boots and shoes. Recently the slashing of upholstery has increased and although one can see a reason for it when the material is removed, it is quite impossible to perceive any sense whatever in running a knife across good first-class material, or in destroying the netting on luggage racks.

Psychologists attribute this stupid type of damage to an "inferiority complex" on the part of the offenders. In some obscure way they have a grudge against society in general and endeavour to "take it out" in some sort of deliberate damage. Whether this is the case or not, there is only one way to keep it in check and that is by extremely stiff sentences on anyone caught in this work.

It is costing the companies hundreds of man hours per week to remedy these mean acts and this is a direct negation of the war effort, emphasising the fact that such crimes are a serious offence against the country as a whole. The items outlined above are not the whole of the sorry story, but they are sufficient to indicate that a very small section of the travelling public if possible should be brought to book in the most effective way.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Lord Brabazon on the Future of Railways

Charles Roberts & Co. Ltd.,
Railway Wagon Works, Horbury Junction,
Near Wakefield. February 4

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Mr. Walter Lippmann, writing on the freedom of the Press, recently stated that: "No better pledge can be given of an honest relation between people and government than a readiness to let differing versions of facts and of view be known." You have been good enough on several occasions to allow me the privilege of your columns to put forward differing versions of fact and differing views with regard to privately-owned railway wagons, and I therefore hope that I may have that privilege again on this occasion.

In a recent issue of a Sunday newspaper, I observed Lord Brabazon's brief remark that these private-owners' wagons should be taken over by the railway companies, and the quotation, in your issue of January 14, of this same remark. Is it quite fair for these one-sided statements to be made, unless provision is also made for the expression of different views, seeing that only in that way can public opinion form a true judgment of any particular case?

Naturally, the general public, which can have no detailed knowledge of this subject, may jump to the conclusion that any railway wagon should be the property of the railway companies, but I should like to point out that there are many very important factors which must be taken into consideration, so far as mineral wagons are concerned, before that drastic change is allowed to take place. One readily admits some weaknesses in the present arrangements, but on the other hand, permit me to point out that at the right time and in the right place, there can be produced many sound arguments which would justify the private ownership of these wagons. One could not expect to set them forth in a brief letter such as this, but I submit that the very fact that there are in existence today in this country these half-million privately-owned mineral wagons is, itself, a proof of the justification for their existence, because it will not be suggested, I am sure, that owners have expended millions of money for the fun of the thing. Rather is it the case that they have found, as hard-headed business men, the cheapest and most advantageous method of wagoning their coal. Also, it must be recognised that at any time during the last fifty years, the railway companies could have rendered this service in the provision of these wagons, had they so desired.

I very much fear that politics and not economics will be the governing factor, and I can only hope that a fair and common-sense solution will be found which will give what we all desire, the cheapest and most efficient service for all concerned, and

coupled with that the slogan which the railway companies made a few years ago—"A square deal."

Lord McGowan has put forward a defence of private enterprise which is worthy of serious consideration by the people of this country, and this private wagon-owning industry, in all its branches, has played a very important part in our industrial world. It is a form of private enterprise not to be thoughtlessly cast on one side just to satisfy a certain section which seeks to take advantage of a world war to foist on the British public their fancy nostrums which, they so fondly imagine, are going to produce a new heaven and a new earth in this country.

Yours faithfully,
DUNCAN BAILEY

"Railways, Canals, Roads"

Trent Navigation Company,
Nottingham. February 1

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—May I be permitted to express disagreement with the views contained in the article printed on page 80 of your January 28 issue, headed "Railways, Canals, Roads," which states that there is little inducement for the railways to try to foster canals as the mere cost of maintenance exceeds the gross receipts.

The Railway & Canal Traffic Act, 1888, requires every railway company owning or managing any canal to maintain such canal and all reservoirs, works, and conveniences connected therewith thoroughly repaired, dredged, and in good working condition, and to preserve the supplies of water to the canal so that the public might enjoy the user thereof without any unnecessary hindrance, interruption, or delay. I submit that this statutory obligation has not been carried out in all cases by the railway companies, and I suggest that if the requirements of Parliament in this respect had been obeyed your assertion referred to above could not have been advanced.

I submit that the railway companies have never developed those of their canals which from geographical and other reasons were capable of beneficial, commercial development, and for simple proof of this assertion I would refer to the obsolete bye-laws originally framed a century ago which continue to regulate the passage of traffic to the detriment of the efficient movement of craft. The contrast between the railway policy of suppressing their canals and developing road transport is certainly startling.

Yours faithfully,
W. FRASER
Se. retary.

[In 1938 the main-line railways spent £174,694 on maintenance of canals and £8,957 on water supply. If these expenditures, which exceeded their receipts of £171,497, did not cover their statutory obligations, it was open to any aggrieved party to take proceedings in order to have matters put right. The fact that no such action has been taken, so

far as we are aware, would appear to show that if any particular section of a canal has not been kept in good working condition, there was no public demand for its use. Two stretches of railway canal on which navigation has ceased are, to our knowledge, maintained at considerable cost merely for the purpose of supplying water to adjoining properties and there may be other cases of a similar kind. We do not follow Mr. Fraser's second point about bye-laws standing in the way of development. There have been opportunities in recent years of ventilating any question about the movement of craft on canals, but we cannot recollect any agitation on the subject. The railways have not, as Mr. Fraser suggests, adopted a policy of suppressing canals, but are spending from year to year larger sums on maintaining waterways than appear to be justified in some cases by the utility of these undertakings to the community.—ED. R.G.]

Trams and Trolleybuses

29, Queen's Drive,
London, N.4. February 5

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Mr. C. E. Fairburn's Faraday Lecture on "Electric Railway Traction" contains much of interest to the student of transport, but one passage in Part VI, published in your issue of February 4, calls for some comment.

In discussing the relative merits of electric trams and trolleybuses, it is stated that there is nothing of special interest about the tram; "it has fulfilled a useful purpose, but as it is today being superseded in most places, no more need be said about it." No mention is made of the fact that the towns which have abandoned their tramway systems were, almost without exception, the possessors of antiquated and uneconomic survivals from the early days of tramways. To speak of the higher acceleration of the trolleybus is manifestly to beg the question; obviously it depends on the type of tram and the type of trolleybus under consideration. The very latest creation in trolleybuses is often compared with the tramcar of thirty or forty years ago, to the great disadvantage of the latter vehicle, but British manufacturers have proved that a tramcar of really modern design is anything but a reminder of a bygone age; the luxurious English Electric-built cars in service at Blackpool may be cited as a case in point.

In conclusion, may I suggest that no one would accuse the public transport authorities in such places as Edinburgh, Glasgow, Leeds, Liverpool, and Blackpool of being behind the times. Yet all are happy in the possession of up-to-date, efficiently run tramway systems which appear to give entire satisfaction to the large populations concerned.

Yours faithfully,
H. J. HUDSON

Baker Valve Gear

5, Hurst Road, Winchmore Hill,
London, N.21. October 26

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—In describing the Baker valve gear on page 587 of *The Railway Gazette* of June 11, there appeared some very interesting references to features in design, and also to performance as compared with the Walschaerts gear. Further explanation, I think, is necessary, and as there are other points worth mentioning, I am writing to clarify the position for readers who, though familiar with the Walschaerts gear, may not be fully conversant with the Baker gear.

It should be noted that with valves arranged to have the same travel, steam lap, and lead there is practically no difference in the valve movements derived from the Walschaerts and Baker gears. This being so, the valve events of release and compression in relation to the cut-offs will not be delayed in the Baker gear, and provided the piston valve and ports are identical for both types of gear, then the areas to admission and exhaust will be the same, and the indicator diagrams should have similar profiles.

It is known that the Walschaerts gear has a limited capacity of travel, as excessive link swing will result in a wedging action of the die-block in the link which will have a detrimental effect on the gear, whereas the Baker gear is capable of longer travels without causing any ill effects. Valve travel in excess of that produced by the Walschaerts gear will give a later release and compression, but it must not be overlooked that the cut-off will also occur later.

The Baker gear is generally described as being a modified form of Walschaerts, and although the main features are retained, it also combines the reversing principle of Marshall's modification of the Hackworth gear by means of an ingenious arrangement of levers and pins.

As the link foot of the Walschaerts gear is set back to produce equal swing of the link on either side of its mean position, so also is the pivot axis *d* of the eccentric rod and the gear connecting rod set back in the Baker gear. But this off-set in the Baker gear is not sufficient by itself to give equal valve travel at the front and back cylinder ports. To achieve this desirable feature there is inequality between length *b c* of the radius bar and the length *b f* of the gear-connecting rod to overcome the distortion produced by the reversing gear connections. Should the centre distances be made identical the valve travel will become shorter on the front port and longer on the back port for both forward and backward gear, and there will be no movement of the bell crank and valve rod in mid gear. As it is desirable for the centre distances to be unequal there will be movement of these parts from full gear down to mid-gear; this is greatest when the piston is at the extreme ends of its stroke. Therefore the lap and lead movement at the combination lever must be less in the Baker gear than in the Walschaerts by the amount of valve rod travel, in other words, lap and lead equals the travel of the valve rod plus the travel of valve stem produced by the combination lever.

As the reversing gear is the novel and most outstanding feature of the Baker gear the following should be compared with the Walschaerts gear. For mid-gear setting of the Baker

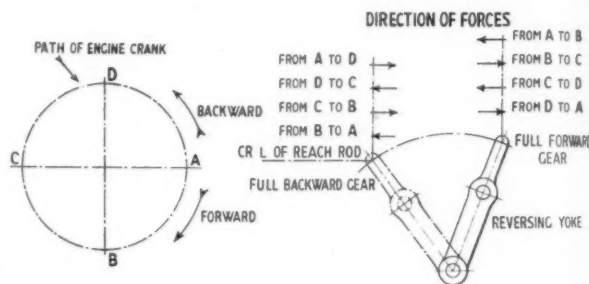


Fig. 1—Diagram showing the direction of forces tending to turn the reversing yoke round its pivot during one revolution of the engine crank for both forward and reverse running. For a 2-cylinder engine additional forces similar to those shown will occur, but at 90° ahead or aft (see also page 135)

reversing gear it is necessary for centres *f* of the bell crank and gear connecting rod to be in the same plane and on the same centre line as centres *e* and *c* of the reverse yoke. Fig. 3 on page 587 shows the gear in full forward position and when the reverse yoke moves centre *c* on to the opposite side of centre *f* the gear is set for backward running.

When the engine crank is on either front or back dead centre it is possible to operate the reverse without moving any of the gear parts. In all other positions of the crank the reverse will move the whole gear, including the eccentric rod, and the greatest movement will occur at the top and bottom crank centres. There are forces acting on the reverse yoke tending to turn it about pivot *e* so that it must be securely held in the required position; on no account, moreover, must the reverse yoke be moved through a greater angle than that provided for in the design, otherwise the links would become locked and probably torn from their bearings. Although a good deal of work is thrown on the reverse gear in moving the accumulated weights of the gear parts and resisting the forces, it should be borne in mind that in America power reverse gears are a compulsory fitting, so the driver is therefore relieved of any undue exertion in operating the engine.

The Baker and Walschaerts gears are the only ones that have been able to meet the exacting conditions and hold their place in American locomotive service. There are, of course, more parts in the Baker gear arranged round several pin centres having various positions, and for this reason greater accuracy of manufacture may be necessary, and a power reserve seems to be desirable for operating the Baker gear.

It cannot be said that the Baker gear gives inferior steam distribution to the Walschaerts, but these gears have been developed to a high standard of efficiency for operating a valve which controls both inlet and exhaust. The possibilities of major improvement in these valve gears are now limited, and to solve the problem of developing high horsepower at relatively low rates of steam consumption, basic changes in design are necessary.

A. REIDINGER

[Editorial reference is made on page 131 to the above letter—Ed. R.G.]

Fig. 2—The full lines show the Baker gear in full forward gear with engine crank on bottom centre. The etched lines indicate the position of the gear when moved by the reversing mechanism to full backward gear while the engine remains stationary

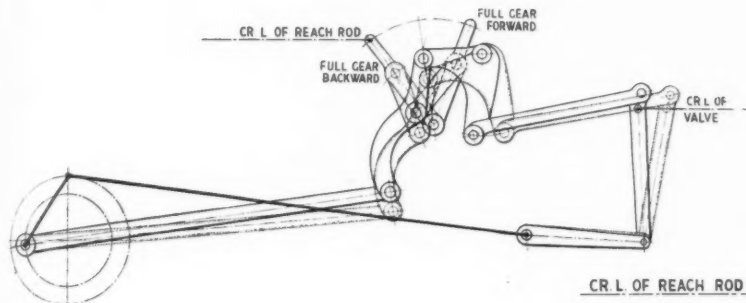
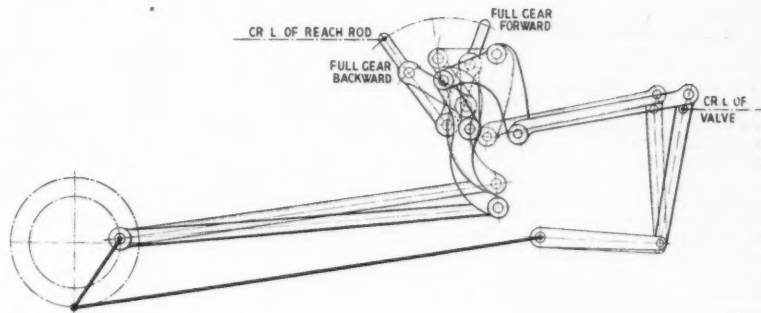


Fig. 3—The same comparison is made as in Fig. 1 but with the engine crank on top centre. Note that as the engine crank approaches front or back dead centre the movement of the valve gear parts by the reversing gear becomes less, until the crank is actually on either dead centre; then the reverse may be moved without imparting any movement to the valve gear

Fig. 4—Positions taken up during one revolution of the driving wheels when set for full forward gear. Note the equal swing of the bell crank and the angularity of the rod which connects the bell crank and the combination lever

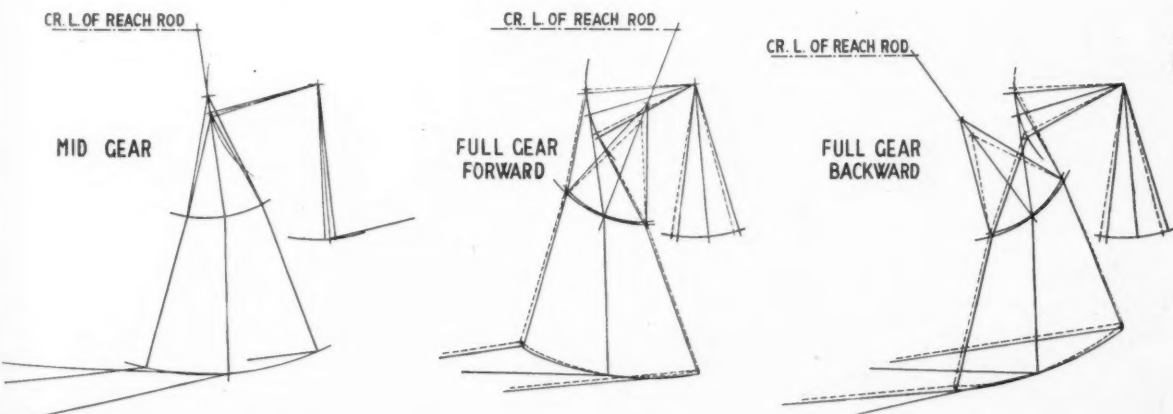
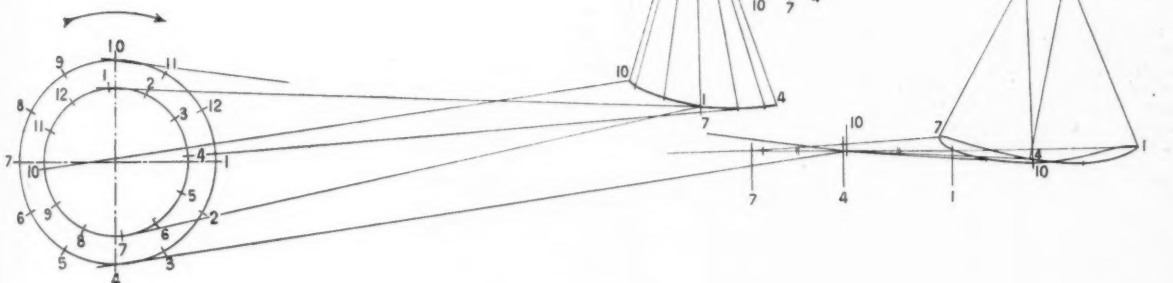


Fig. 5 (Left)—Movement of the bell crank in mid-gear position occasioned by the unequal centre distances of the gear connecting rod and the radius bar. Figs. 6 and 7 (Centre and right)—Effect on the gear of making equal the centre distances of the gear connecting rod and the radius bar. The full lines indicate the gear having unequal centres and the dotted lines show the corresponding parts when the centre distances are equal. Note the unequal swing of bell crank in both forward and backward gear settings (see also facing page)

The Scrap Heap

SOUTHERN SALVAGE

The Southern Railway during last year salvaged 879 tons of waste paper, 45,463 tons of metal, 235 tons of waste straw, 50 tons of rubber, and 190 tons of textiles and old rope.

Travel on the footboards of passenger coaches has become so extensive in Ceylon that the railway authorities are to take stricter action against the practice. Certain travellers appear now to prefer footboard travel to that inside compartments, despite the dangers.

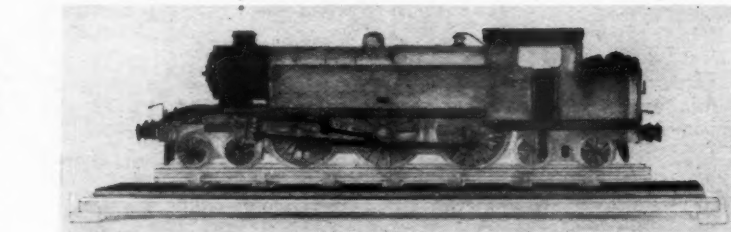
Last year's value of crops grown on the 22,000 allotments alongside the track of the L.M.S.R. is estimated at £200,000 and is the highest on record. To encourage still more food growing the L.M.S.R. is prepared to let suitable lineside sites to members of the public on very favourable terms in readiness for the 1944 gardening season. This year's harvest should easily reach the £250,000 mark.

RAILROAD OR RAILWAY?

Is there a difference between a *railroad* and a *railway*?

There is no distinction. The terms are used interchangeably in the United States. Of 137 Class 1 railroads in the United States, 64 use *railway* and 68 use *railroad* in their corporate names. Five use neither. Most electric street, subway, elevated, and interurban lines are called *railways*. In the British Empire, *railway* is used in preference to *railroad*.—From "Quiz on Railroads and Railroading."

The 85th anniversary of the opening of the Central of Brazil Railway, which occurred recently, was marked by the installation on one of the towers of its new Dom Pedro II terminus in Rio de Janeiro, of one of the largest clocks in the world. The four-faced clock stands at a



The photograph reproduced above shows a true to scale locomotive carved and built up from $\frac{1}{16}$ -in. sheets of scrap Perspex. The maker of this model, who is not a railway man, had to work to a postcard photograph of the late L.B.S.C.R. "Remembrance". The only dimensions given to him were the size of the wheels and the wheelbase. The scale of the model is 0.096 or $\frac{1}{10}$ in. to the foot, and it is almost complete in every detail; inside the cab are the regulator, reversing lever, brake lever, pressure gauge, and fire-hole door. Time taken to build up this engine amounted to 68 hours and no other material than Perspex has been used

height of 108 metres (354 ft.), and has a dial of over 10 metres (33 ft.) in diameter; the hour hands measure $4\frac{1}{2}$ metres ($15\frac{1}{2}$ ft.) each, and the minute hands, $5\frac{1}{2}$ metres (18 ft.). In comparison, the one-faced Eiffel Tower clock has a dial diameter of 15 metres (49 ft.); and the clock of the Colgate factory in New Jersey has a diameter of 12 metres (39 ft.). Excluding Big Ben, the Dom Pedro II clock is claimed to be the largest four-faced clock in the world.

William Robert Welfare is the porter in charge by night of Hayward's Heath, Sussex, where all the lines divide and go their different ways. His voice carries the authority of 500 sergeant-majors and the volume of 5,000 megaphones.

They say that when his voice is really at its best it carries as far north as Three Bridges and as far south as Brighton. Those who have heard him will agree that this is only a slight exaggeration.

All the season ticket-holders, all the regular travellers on the south coast line recently celebrated William Robert Welfare's greatest hour in quite an unex-

pected way. They were short-handed at Three Bridges, ten miles up the line, so they transferred William Robert Welfare from Hayward's Heath to Three Bridges. From the platform of Three Bridges his voice boomed out as loud as ever when the last train ran down from London. Everyone bound for Hayward's Heath recognised the voice and got out. They say that scores of them never got home. The train ran on down to Hayward's Heath. Sleepy people who expected to be roused there by the well-known voice went on to Bognor. This is the first time William Robert Welfare has let down his passengers—and it wasn't his fault.—From "The Daily Mail."

The Vicar and churchwardens of Overbury Church have sent to the Railway Benevolent Institution the sum of £16 12s., representing the church collections for Sunday, January 30, allocated in memory of the late Mr. Robert Holland-Martin, Chairman of the Southern Railway Company, who had agreed to act as President of the Institution for the current year.

TUBE TRANSFORMATION

You remember that Sherlock Holmes story called "The Man With the Twisted Lip"—the story of a prosperous City man whose real income was obtained by painting a scar on his face and begging every day in the streets. I was reminded of it by a story I heard to-day.

In one of the London tube station shelters there lives a City accountant. He arrives there from his office every evening, changes into old clothes, and stays the night. In the morning he changes back into immaculate City garb—black coat, striped trousers, stiff collar—and goes off resplendent to his office.

He has been doing this ever since the blitz.—From "The Evening News."

TAILPIECE

(The last section of the line from London to Dover was opened on February 7, 1844)

Travellers have come this way Since before the Roman's day. King, crusader, pilgrim, rover. Age by age have passed through Dover.

Courier and coach-and-four Raced to Dover, England's door, Place of traffic and romance And the nearest point to France.

Swifter means of getting there Were adopted everywhere. Five score years are past and over Since the railway came to Dover. E. C.



Science

Question No. 2: A train leaves Victoria for Brighton with 502 passengers; at Croydon 2 get off and 403 get on . . .

[Reproduced by permission of the proprietors of "Punch"]

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

INDIA

War Front Exhibition Coach

The Maharajah of Jodhpur gave a National War-Front Exhibition special train an official send off at Jodhpur, on November 30, 1943, when it began a tour of the metre-gauge lines in Rajputana. The Maharajah said that the purpose of the exhibition train was not that it should be merely a showroom, but rather the means of conveying a series of ideas to its visitors.

Floods on E.I.R.

Details of the heavy floods near Burdwan, East Indian Railway, and the resultant dislocation of rail traffic, to which a reference was made in the August 27, 1943, issue of *The Railway Gazette*, have now been released. In July, 1943, the River Damodar, which was in flood, broke through the bund, and reverted to its former course. The floods breached both the direct and the Bandel lines from Burdwan to Howrah; further floods in August and September prevented restoration of rail traffic before October; normal services were not resumed until December.

Staff and pile-driving equipment were lent by the North Western Railway to the East Indian Railway to assist the repair of bridges. In the case of one bridge of 13 spans, each of 30 ft., N.W.R. men built 70 spans and drove 641 piles in two months. In 1943, on the East Indian Railway, nine bridges were destroyed, one bridge was partially destroyed, and four miles of track were rendered unserviceable.

Proposed Calcutta Electrification

At a meeting with the War Transport Member, Government of India, on December 16, 1943, the Committee of the Indian Chamber of Commerce suggested that, to relieve congestion, the lines of the East Indian Railway and the Bengal-Nagpur Railway in the Calcutta area should be electrified for distances of up to 150 miles from the city.

UNITED STATES

Wabash Locomotive Reconstruction

During 1925, at a time of peak traffic, the Wabash Railway obtained 50 2-8-2 freight locomotives from the American Locomotive Company, 45 with two cylinders each, and five with three cylinders. During the depression years most of these engines were laid off, but a number was returned to service as wartime transport demands increased. The 3-cylinder 2-8-2's, however, were not considered suitable for the higher speeds now required, and it was decided to rebuild them, at the company's Decatur shops, into 4-6-4 express engines. The old boilers, which have 45-element type "A" superheaters, have been transferred to new chassis, with 6 ft. 8 in. coupled wheels in place of the previous 5 ft. 4 in. coupled wheels, and bogies to support the fireboxes. The heating surface remains at 4,225 sq. ft. in each case, superheating surface at 1,051 sq. ft.; and grate area at 71 sq. ft.; but the boiler pressure is increased from 210 to 220 lb. per sq. in.; two cylinders, 26 in. by 28 in., replace the previous two of 23 in. by 32 in. each and one (inside) of 23 in. by 28 in., so that the tractive effort falls from 67,870 to 44,200 lb. The total engine-weight is increased from 152 to 167 tons, but the adhesion weight drops from 112 to 88 tons. Tender capacity, by internal rearrangement, has been altered from 10,000 gal. of water and 18 tons of

coal to 12,000 gal. and 16 tons, respectively. Special attention has been paid to balancing, and to streamlining the steam passages, and the travel of the 12 in. piston valves has been increased from 6½ in. to 8 in., to adapt the engines for fast running. A handsome exterior is provided by a livery of deep blue, with a wide band of aluminium white, edged with 1-in. red lines, running from the cylinders to the back of the tender, and polished motion parts. The rebuilt engines, which are the most powerful in passenger service on the system, are being used on heavy night trains between St. Louis and Detroit, and St. Louis and Kansas City; also on troop trains and fast freight service.

A Rock Island Relocation

A 15-mile relocation of the principal main line of the Chicago, Rock Island & Pacific Railway between Chicago and California, and also between Minneapolis and Texas, completed a year ago, has been of considerable service in helping to handle wartime traffic on more economical lines than would have been possible on the original route. From 1¼ miles north of Mill Grove to ¾ mile north of Mercer, in Missouri, the old line had a ruling gradient of 1 in 106, making a considerable amount of assistance necessary with heavy trains, and "Buckeye Bend," a curve of 14½ ch. radius near Princeton, requires a 30 m.p.h. restriction on passenger-train, and 20 m.p.h. on freight-train, speeds; the curvature was chiefly along the Grand River Valley, out of which the line climbed 223 ft. in 4½ miles. The new route is 14.8 miles long, as compared with the old one of 16.1 miles, has a maximum gradient of 1 in 200, and is considerably less curved; the sharpest curve is one of 29 ch. radius. As a result, 4-8-4 locomotives of the "5000" class now can handle 5,000-ton trains eastbound up Mercer Hill, whereas previously an assistant locomotive was needed for loads exceeding 3,000 tons.

Very heavy earthworks were necessary; the final location required the excavation of 2,500,000 cu. yd., of which 450,000 cu. yd. was in rock. The deepest cutting is one of 69 ft. The soil, chiefly red and yellow clay of a poor quality, has given trouble to the Rock Island system previously, and for this reason slopes as flat as 1½ to 1 were decided on for cuttings and embankments, with a 34 ft. width of cutting floors and 24 ft. for the tops of embankments, although the track is single. Heavy rollers were used to compact all slopes to 90 per cent. of the normal consistency of the material; water or dry soil was added as required to give a standard moisture content at the time of rolling. Three steel underline bridges and seven overline bridges were required.

This relocation continues a grade-improvement plan which has already provided the Rock Island with a ruling gradient of 1 in 200 almost throughout the 710 miles from Trenton, Missouri, to Tucumcari, New Mexico, where junction is effected with the Southern Pacific.

Roller Bearings on the B. & O.

The first Baltimore & Ohio Railroad steam locomotive to be equipped with roller bearings throughout left the company's Mont Clare shops at Baltimore recently. It is No. 5564, one of a series of 4-8-2 locomotives of Class "T 3" which are in course of being rebuilt with modern improvements from their previous 2-8-2 wheel arrangement. The bogie has SKF roller bearings, and the coupled wheels

trailing truck, and tender bogies are equipped with Timken bearings. Careful watch is to be kept on maintenance costs with this engine. The other 4-8-2s of this series have been so designed that roller bearings can be substituted easily for their friction bearings without structural alterations, if the experiment proves successful. Twenty Mallét articulated locomotives now under construction by the Baldwin Locomotive Works for the B. & O. also are being equipped throughout with roller bearings.

BRAZIL

Mogyana Railway Results

At the general meeting of the privately-owned Mogyana Railway Company, it was announced that the year 1942 had been one of the best on record. The main reason for the improved situation had been the nationalisation of the foreign debt, which in late years had formed an unsurmountable obstacle to any measures for placing the railway in the position of prosperity it had enjoyed years ago.

Receipts for the year 1942 totalled Cr. \$75,748,178, compared with Cr. \$64,891,699 in 1941, and expenses amounted to Cr. \$56,003,709, against Cr. \$50,543,216, leaving a balance of Cr. \$19,744,469, compared with Cr. \$14,348,483 in 1941.

With the object of raising a loan from the Bank of Brazil for the payment of the foreign debt, and in accordance with a term of adjustment signed in London on October 31, 1941, the company made an issue of 650,000 debentures to the total of Cr. \$130,000,000. Of the total debentures issued, 611,000 had been subscribed at the end of 1942. With the loan of Cr. \$98,000,000 obtained in lieu of the debenture issue the foreign debt had been liquidated, and in addition the loan had been repaid, notwithstanding the agreement with the Bank of Brazil providing for a period of five years for settlement.

Principal traffic figures for the years 1941 and 1942 are given below:—

	1941	1942
Passengers ...	2,685,121	2,523,941
Parcels (tons) ...	47,860	53,629
Telegrams ...	165,876	166,556
Coffee (tons) ...	82,564	83,811
Other goods (tons) ...	1,057,192	1,094,228
Livestock ...	117,135	117,959

ARGENTINA

Railway Pension Fund Report

The annual report and balance sheet for 1942 of the Railway Pension Fund shows that, despite the reductions in benefits and the increased contributions put into force at the end of November, 1942 (see *The Railway Gazette* of February 12, 1943), the financial position is as precarious as ever. The year under review closed with a deficit of over 27,000,000 pesos. Expenditure amounted to 81,486,505 pesos, but income reached only 54,256,059 pesos. Interest on investments, amounting to 6,203,213 pesos, reduced the deficit to 21,027,233 pesos, which sum, added to the accumulated amounts of the last five years, brings the total fall on the capital of the fund during that period to 75,459,514 pesos.

The number of beneficiaries is given as 49,056; the total amount at present paid out in pensions is 62,000,000 pesos a year. The report states that, to meet this outlay, the reserves at the disposal of the fund should exceed 550,000,000 pesos, but that, due to past actuarial errors and miscalculations, the actual sum available for this purpose is only 329,152,303 pesos. During 1942 the contributions from the railway companies fell to the record low level of 73,609,288 pesos.

The Life of the Steam Locomotive

Some points to be considered in post-war construction

COMMENTING on the survival of a few of Mr. Whale's 4-6-0 goods engines with 5 ft. 2½-in. driving wheels, a writer in a contemporary journal remarked that, but for the present war, the class would have become extinct. So, we may safely say, would have numerous other classes of locomotives which were being superseded during the years immediately before the war. Although economic considerations will probably limit the extent of new locomotive construction for some time after the conclusion of hostilities, the railway companies no doubt will be in a position to decide on matters of policy as to replacements of rolling stock, and will be preparing their plans.

How long does a locomotive last? And how long *should* it last? These questions have been debated over a number of years; and many of the latest American, as well as some Continental, treatises on locomotive construction, give curves showing the economic life of engines for various duties, with information as to the rising cost of repairs and maintenance with increasing age. In theory, these curves enable railway executive officers to decide just when a particular type of engine becomes uneconomical, and gives the date when it should accordingly be withdrawn from service.

What cannot be foreseen when such curves are prepared, however, is the possible changes in operating conditions which may occur in the future—changes which may result in locomotives still in their prime being suddenly made available for duties carried out by older engines which have nevertheless not yet reached the end of their period of usefulness. Such a change could be occasioned by the electrification of a section of line, or by the adoption of heavy-oil engines as prime movers for a particular service, or by the introduction of very high speeds over a stretch of line, necessitating an all-round increase in locomotive power (and perhaps, in consequence, new types of locomotives to cope with it, so as to minimise track occupation). Again, the grouping of railway companies, like that which took place 20 years ago in Great Britain,

is a distinct possibility in a number of countries abroad, where it might profoundly affect the life of the locomotives.

The late E. L. Ahrons, writing of the celebrated engine *Charles Dickens* on the L.N.W.R.,* referred to its total mileage before scrapping as being about 2½ millions. "It would be interesting," he writes, "to learn how much of the original engine remained in it at the termination of its career. The other 'Precedents' of 1874-82 had been practically completely renewed, and very little, if anything, of the original engines remained. The crucial question is whether the original frames of the *Charles Dickens* lasted throughout, bearing in mind that they were only ½ in. thick. Much may be done with a knife" (he added characteristically) "if it be provided with three or four new blades and a similar number of new handles."

It must be admitted, however, that to identify the length of a locomotive's existence with that of its frames is somewhat arbitrary, though certainly convenient for the historian. We know of cases where engines have been provided with new frames throughout, and yet continued to be considered by the owning company, by historians, and all alike as mere "rebuilt." We know, too, of large numbers of locomotives in which a *portion* of the framing has been strengthened by replacement with a stronger design extending from the front buffer bar to the motion plate or slide-bar bracket. Do these cases rank as "new" frames?

The new policy of expediting locomotive repairs initiated by the "belt system" which was adopted at Crewe in 1926 has obliged railway companies which introduced that or any similar system to carry very large stocks of spares, and it undoubtedly produced conditions under which it was a far easier matter to provide, say, a new boiler, than ever before. The same considerations would also naturally apply to cylinders and other parts. After the present war, however, it may be very

* "The British Steam Locomotive from 1825 to 1925 (Locomotive Publishing Co. Ltd., London, 1927), page 195

much more difficult to carry such extensive stocks, and some retrenchment may be necessary.

It thus becomes apparent that in contemplating new types of locomotives, fresh efforts should be made to attain, if possible, a duration for all the principal renewable parts, which is at least comparable with that of the engine itself. Let it be supposed that a new projected type is expected to last 40 years. Is it too much to suppose that frames, boiler, and cylinders will all last that length of time? Probably it is, under present conditions of design and operation, and with present-day materials of construction. But unless something should prove to be grossly wrong with the proportions of, say, the boiler (for example, far too small as originally designed) this is surely an aim to be kept in mind.

By careful study of feed-water treatment, the Chesapeake & Ohio Railway has increased the boiler life so that it is now as long as that of the locomotive. Admittedly their locomotive life is short by our standards—about 18-25 years, we believe—but this achievement is a valuable pointer as to what can be done. As for cylinders, renewable liners provide a means for retaining the main casting in service indefinitely. Even cylinders of the ordinary close-grained cast-iron can have an astonishingly long existence; we recollect the words "New cylinders, 1883" on the record sheet of one of the late Patrick Stirling's saddle-tank engines when it came into the shops for repairs over forty years after that date.

With the object of preventing, or at least of reducing to a minimum, the provision of a second boiler or cylinder casting during the life of a locomotive, the design of the machine may well have to be revised throughout. Thus, if renewable cylinder liners are adopted, we might consider the possibilities of avoiding even a separate casting and giving a trial to a single steel casting comprising frames, cylinders, smokebox saddle, drag box, frame stays, and slide bar and motion brackets—as has been done in the U.S.A. With present-day advances in welding, there should be nothing unduly difficult in carrying out any repairs to such a casting—which from its very nature would require very few repairs, if chance damage is ruled out.

Low Range Boiler Efficiency Diagram

AS intimated in our issue of January 28, we present herewith a second folding-plate to facilitate the determination of boiler thermal efficiency without the use of steam tables or slide rule. Both these diagrams have been designed by Messrs. H. C. Golder and R. B. Page, and are equally simple to use. In the former case, however, it was assumed that the boilers in question were generating superheated steam. A modified diagram is therefore now made available for conditions in boiler plants supplying saturated steam. As will be seen, the pressure-lines have been carried down to points opposite their corresponding saturation temperatures, and these points have been joined up to form a "saturation curve." In this form the diagram is thus suitable for use on locomotive boiler tests as well as for boilers employed on heating and similar services.

Two examples are now given of the method of operating a diagram as indicated by the guide lines engraved thereon. (Figures in brackets are the points followed by the chain-dotted guide-lines).

(1) *Saturated Steam*.—Starting at the junction of the required pressure-line (200 lb. per sq. in.) with the saturation curve, rise or drop vertically to the feed temperature (150° F.); now move horizontally from this point to the calorific value of the fuel (10,400 B.Th.U. per lb.); drop or rise from here to the line representing the lbs. of steam produced per lb. of fuel burned (6.80), and, finally, travel horizontally to the right-hand ordinate of the diagram, which will show the efficiency to be 71.15 per cent.

If this example is worked out, using Callendar's Enlarged Steam Tables and a 20-in. slide rule, the result obtained is 71.20 per cent.

(2) *Superheated Steam*.—The graph's use with superheated steam differs only in that the start is made from the steam temperature on the left-hand ordinate. From this point travel horizontally to the given pressure, and then the procedure is exactly the same as before.

Many uses of this diagram may be found apart from the use for which it was originally intended. For instance, it is

often desirable to be able to say whether a boiler is doing its full work, or whether it is relying too much on the superheater and economiser to bring up the overall efficiency. This chart will do this much more quickly than the long method, and almost as accurately. For instance, using the following:—

Steam pressure	...	...	...	(1)
Steam temperature	...	...	...	(2)
Water inlet to economiser	...	...	...	(3)
Water inlet to boiler	...	...	...	(4)

First get the efficiency by diagram using (1), (2), and (3), then repeat using (4) instead of (3). The difference is obviously the saving effected by the economiser. To get the saving made by the superheater, neglect (2) and use the graph as if there were no superheater, then subtract the result from the overall efficiency already obtained.

For frequent use it is very desirable to employ the diagrams on considerably larger scales. The authors have arranged for enlarged copies to be made and particulars of sizes and prices may be had on application to Mr. H. C. Golder, care of this journal.

Pre-Stressed Concrete Sleepers

A recent development in pre-cast concrete manufacture

By R. S. V. Barber, B.Sc. (Eng.), M.I.Struct.E.

THE most recent development in pre-cast concrete manufacture is the application of the process of "pre-stressing" to the production of reinforced concrete railway sleepers. Considerable research work has been carried out and the process has now been adapted to mass production.

When the concrete sleeper is manufactured, the steel reinforcement is first subjected to a high tensile stress, and this stress is afterwards utilised to induce in the concrete compressive stresses which will be directly opposite to those tensile stresses produced by the external forces imposed on the sleeper.

Figure 1 shows the condition during manufacture when the steel reinforcement is stretched by the application of an external force F . After this force F has been applied, the concrete is poured into the mould. It is well vibrated, and then allowed to set and harden, and during this period the stretching force applied to the reinforcement is maintained constant.

Figure 2 shows the effect produced when the external force F has been released after the concrete has set and hardened. When the external force is released an elastic shortening results and an inverse bending moment is imposed on the sleeper.

Figure 2A shows the distribution of the imposed compressive stresses when this force F has been released. It will be seen that the whole section of the concrete is then in compression; the bottom fibre is in strong compression and likewise, though to a lesser extent, the top fibre is also in compression.

Figure 3 shows the condition produced under maximum design load. The sleeper is deflected under these conditions in the opposite direction.

Figure 3A shows the distribution of compression under the above conditions. The strong compressive stress previously shown in the bottom fibre when the sleeper was in repose before the external loading has been reduced to nil, or has possibly changed to a very slight tensile stress. The design of the sleeper allows a slight tensile stress in the bottom fibre, as there is adequate safety allowed against any tensile cracks. The compression in the top fibre under load conditions has been increased, and this high value of compression is permissible in pre-stressing, as no danger of fissuration exists.

In the process of manufacture great care is taken to ensure high adhesive coefficient between the pre-tensioned reinforcement and the concrete. A high-tensile steel is used and the value of the applied force F is so calculated that the advantage of pre-stressing is retained permanently in the sleeper. The actual deflection of the sleeper when the stretching force F has been released is extremely small, but it can be measured, and it will be observed that a leaf-spring effect is virtually produced. After the design load has been removed from the sleeper, the sleeper returns exactly to its original condition and is, therefore, in point of fact perfectly elastic in quality.

The strength of the concrete after pre-stressing depends on the pre-compression induced in the concrete which, as mentioned above, is opposite to that of the external load to be applied. The tensile

stresses by the process of pre-stressing are so reduced as to permit dispensing with all shear reinforcing, which results in a saving of steel of between 70 per cent. and 80 per cent. over the ordinary reinforced concrete sleeper.

The difficulties which previously limited the use of concrete sleepers have been very satisfactorily overcome by the process of pre-stressing. The steel and concrete by this process are rendered homogeneous and practically the whole of the cross-section of the concrete, when subject

reduced that it permits all shear reinforcement to be dispensed with and, moreover, the tensile shear stress which does remain under load conditions is of such a small value that it is far below the tensile resistance of concrete and all tendency to cracks in the concrete is eliminated.

Pre-stressed concrete sleepers, as now developed, are economical for all railway work, as due to the high factor of safety obtained and the protection afforded against an all weather deterioration, any initial increase in unit cost is amply offset by the subsequent saving in replacement and maintenance costs and the particular characteristics introduced by pre-stressing render these sleepers satisfactory for main-line traffic, heavy goods sidings, and abnormal wheel loads, as experienced in certain industrial undertakings.

The reduction of steel using the process

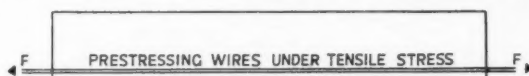


FIG. 1.

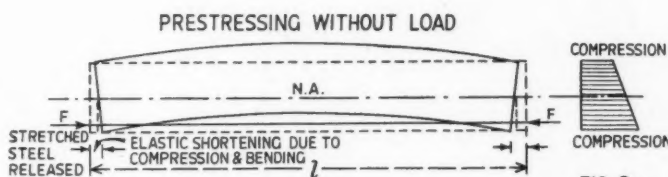


FIG. 2.

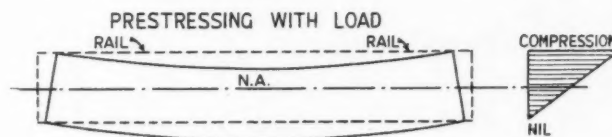


FIG. 3.

FIG. 3A.

Diagrams showing the stages of pre-stressing

to bending, can be used, thereby obtaining a far smaller and almost perfect elastic deflection, and, furthermore, when determining the coefficient of concrete proper under compression, higher stresses are fully justifiable because there is no tendency to fissuration in the danger zones. Also, should it be required to increase the flexibility of a particular load requirement, this can be carried out without impairing the effective strength of the sleeper. In the case of a pre-stressed sleeper, the flexibility can be increased by reducing the cross-section at the centre portion either by recess in depth or by reduction in the sleeper width and at the same time retain adequate safety against surface cracks occurring.

The method of troughing the ballast when laying can also be dispensed with or very considerably modified without danger, and an improvement of the distribution of the ballast pressure on the sleeper is obtained.

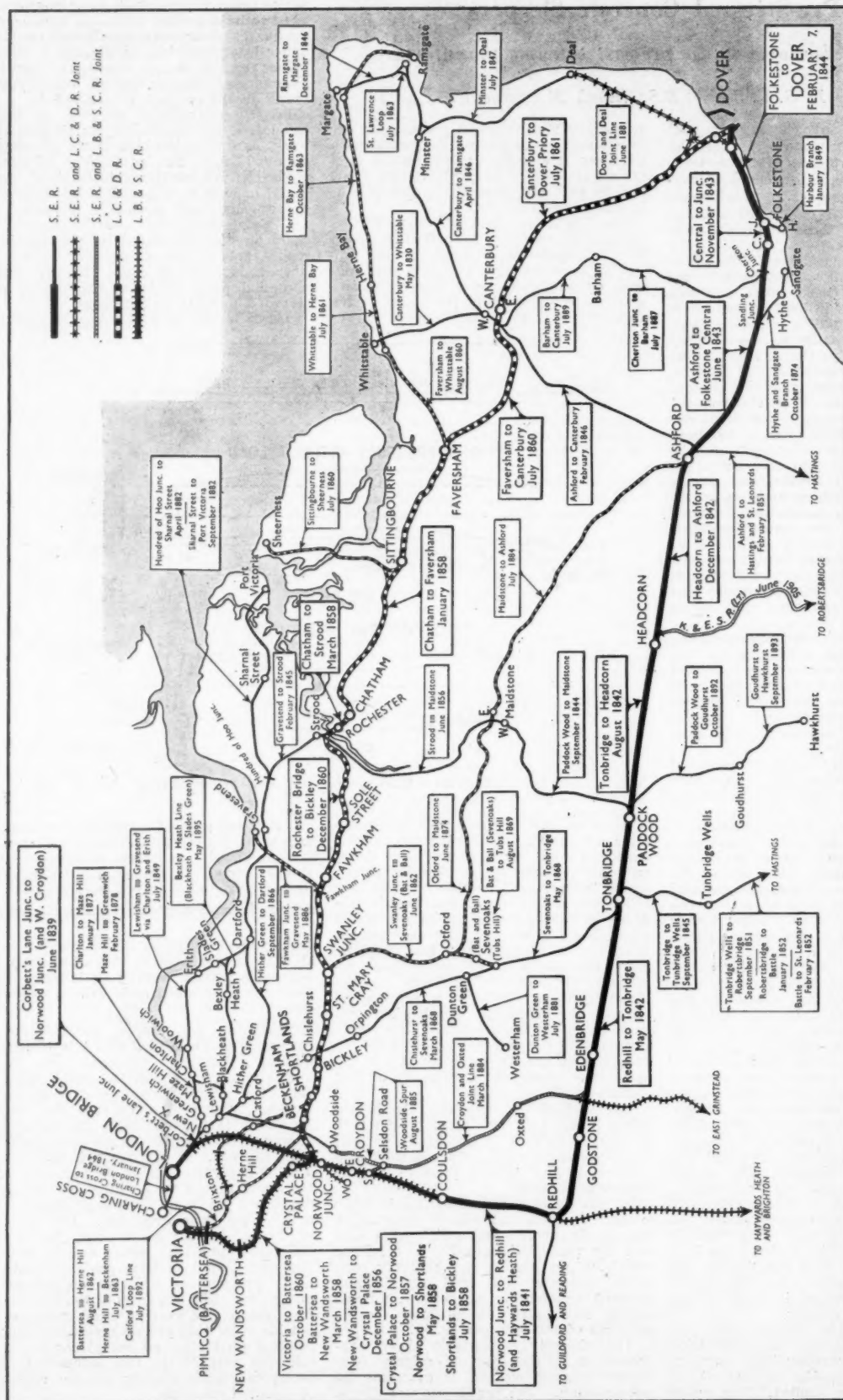
By pre-stressing full advantage is taken of both concrete and reinforcement and a high-grade concrete and a high-grade steel can be used satisfactorily, a condition which is not possible for ordinary reinforced concrete. The steel used in pre-stressed concrete is a special improved patent steel with an ultimate tensile strength of 100 tons per sq. in.

The difficulty of suitable shear reinforcement in the case of ordinary reinforced concrete sleepers is overcome by pre-stressing. The tensile stresses are so

of pre-stressing is of considerable importance when the present demand for sleepers is considered, as this reduction for sleepers shows, on the estimated demand figures, a saving of 80,000 tons of steel.

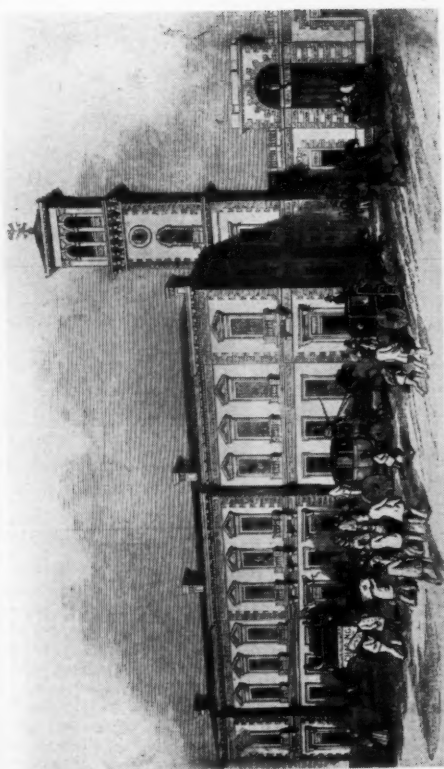
POST OFFICE RECORD RECEIPTS.—Average daily receipts of the Post Office in the United Kingdom from postal traffic in December last were £266,731, a record figure.

ARGENTINE INDUSTRIAL EXPANSION.—According to *The Board of Trade Journal*, quoting statistics published on the authority of the Unión Industrial Argentina, the estimated value of Argentine national industrial production has risen by nearly 45 per cent. since the outbreak of war, and is nearly 100 per cent. higher than in 1935. It is estimated that over 4 million persons (about 30 per cent. of the population of the country) are directly dependent on some branch of industrial activity for their livelihood. *The Board of Trade Journal* points out, however, that the purchasing power derived from agricultural and pastoral production still has a predominant influence on industry and on the other activities of the country; furthermore, the working of all industries, outside those that process agricultural and pastoral products, and except for a considerable part of the fuel consumed, is dependent fundamentally on the import of essential materials.



The trunk line of the South Eastern Railway, completed to Dover one hundred years ago, provided the backbone for all the early railway lines to the Kent coast. The gap between Strood and Canterbury was filled by a local company, formed in 1853 as the East Kent Railway Company; this line was opened in 1858. In 1859 the name was changed to the London, Chatham & Dover Railway Company and the local enterprise developed into a main-line railway, projected to the coast at Dover, and to the Metropolis at Victoria, and subsequently completed intensively with their East Kent Railway

THE DOVER RAILWAY CENTENARY



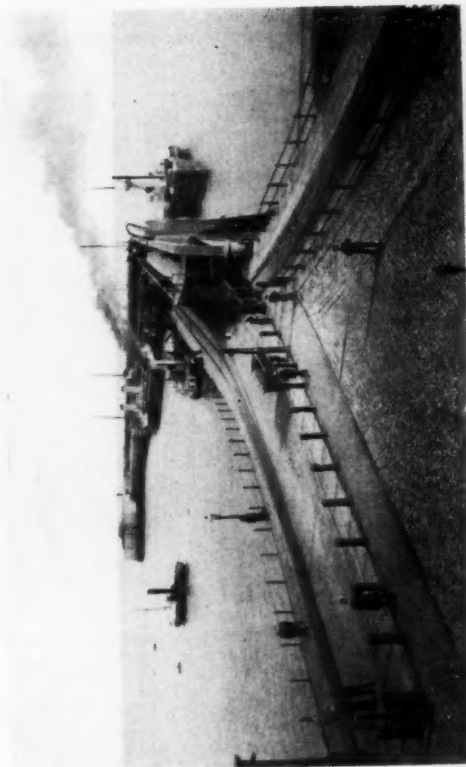
London Bridge terminus, from "The Illustrated London News" of February 3, 1844. It was described as the "Great Joint Station of the Croydon, Brighton, and Dover Railway Company, Southwark."



A bird's-eye view of "the proposed Harbour and Water Station at Dover" in connection with the Channel train ferry scheme of Sir John Fowler. Reproduced from "The Graphic", of March 16, 1872



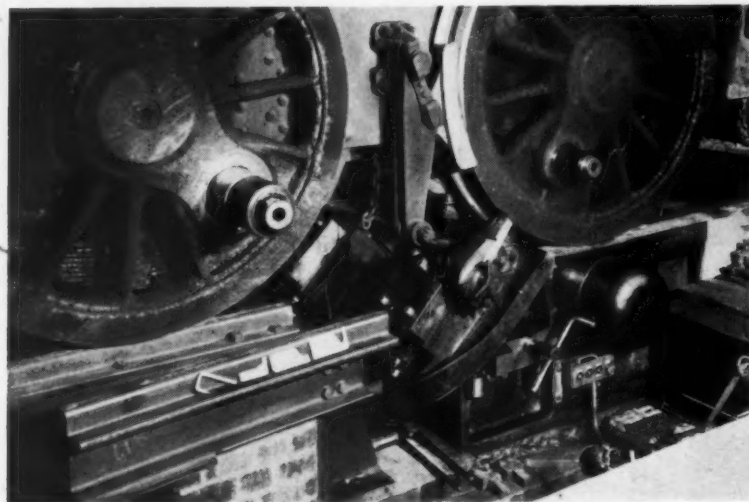
View from the Admiralty Pier, Dover, in the 'seventies, showing (left) the S.E.R. line to the Town Station, and (right) the L.C. & D.R. line to the Harbour Station



Convergence of L.C. & D.R. line (left) and S.E.R. line (right) at the Admiralty Pier, Dover, in the 'seventies. View taken from point in front of Lord Warden Hotel, showing site of present Marine Station

Ground Wheel Lathe

Details of an installation in use on the Great Western Railway



THE profile of the tyres of a locomotive, with its shaped flange and coned tread, has an important bearing on the safety and smooth riding of the engine on the track. After a locomotive has been in service for some time, however, the tyres become worn, the profile loses its shape, and for the maintenance of good working it therefore becomes necessary for the profile to be re-formed. To do this the usual

procedure is to remove the wheels from the locomotive, but where a ground wheel lathe is installed the work may be performed with the wheels still in position on the engine.

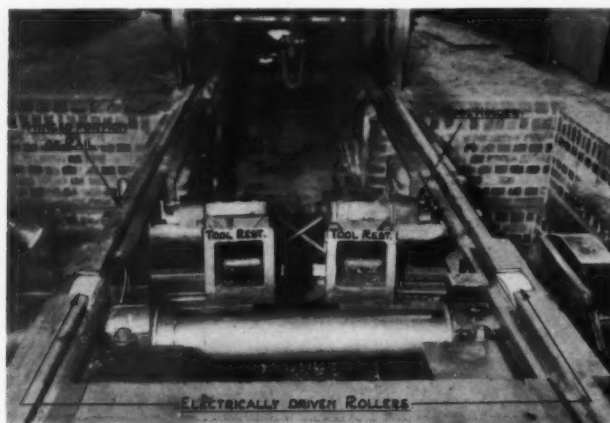
This type of lathe is housed in a pit below rail level. The lathe-driving gear consists of a pair of rollers mounted on a shaft driven by an electric motor through worm reduction gearing, and it is on these rollers that the engine wheels, which are to

be dealt with, rest. The roller shaft is placed transversely below the rails, which have gaps into which the rollers fit, the top of each roller is level with the top of the rail. Two independently operated tool rests are provided, and the traverse of each is set so as to give the correct inclination to the tread of the tyre. The traverse is made of sufficient length to enable the tool rests to be moved clear of the rail to allow the locomotive wheels to pass. To deal with the varying sizes of wheels, the angle at which the tool is set requires to be adjustable. To meet this need the tool holder is constructed so that it can be revolved about a horizontal spindle and be clamped at the correct angle.

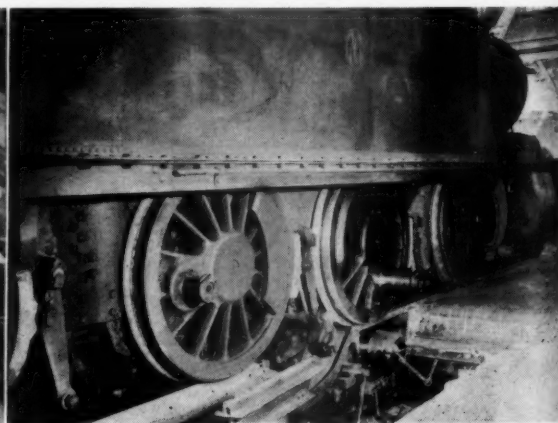
The whole of the lathe machinery is mounted on a cast-iron bed-plate built into the pit, large enough to afford the operator ample working room.

To carry out the operation of machining, the engine to be dealt with has its connecting and coupling rods removed, so that each pair of wheels can be revolved independently. The engine is then drawn slowly on to the ground lathe until the pair of wheels to be machined is vertically above, and correctly resting on the rollers. In this position the engine is securely scotched, and the frictional resistance between the wheels and the rollers enables the latter to rotate the wheels for machining. When the wheels are finally positioned, a hinged portion of rail adjacent to the rollers is swung out and the tool rests are traversed into position under the tyres. The electric motor is then started and the profiling operation proceeds.

A ground wheel lathe was in use as far back as 1860 on the Bristol & Exeter Railway. A number of them now give valuable service at places on the G.W.R. and for the foregoing particulars we are indebted to the *Great Western Railway Magazine*.



General view of ground wheel lathe showing driving rollers and principal parts indicated



Engine with connecting and coupling rod removed, and second pair of wheels in position over lathe rollers

TIMBER CONTROL.—From January 31, the South Division (Scotland) of the Home Timber Production Department of the Ministry of Supply will be merged in the Lothians & Border Division, and all correspondence at present sent to the Divisional Officer at 52, Buccleuch Street, Dumfries, should, as from that date, be addressed to the Divisional Officer at Douglas Hotel, Galashiels. (Telephone: Galashiels 2231). Applications for per-

mission to negotiate purchases of standing timber in the present South Division, it is announced, are already being dealt with at Galashiels.

WASTEPAPER FOR MAPS.—Mobile map-making units, able to tackle every process of map-making from the preliminary survey to the final printing, now follow our armies into battle. At one time during the North African campaign

a mobile field unit of this type worked 22 hr. a day for six weeks without breaking down. Specially adapted lorries carried full-size photo-litho-offset equipment, and printing machines capable of turning out 5,000 maps an hour. For every 5,000 maps 245 lb. of specially toughened, high-grade paper is needed—one more reason why paper is urgently wanted to equip the army in its attack on the enemy.

RAILWAY NEWS SECTION

PERSONAL

Lord Royden, Chairman of the London Midland & Scottish Railway Company, has been appointed Chairman of the Wessex Electricity Company, of which he already was on the board.

Mr. W. U. Appleton has retired from the position of Vice-President & General Manager, Atlantic Region, Canadian National Railways, after nearly 53 years' railway service. Mr. J. F. Pringle, who since early last year has been carrying out the duties of General Manager of the region, to relieve Mr. Appleton of some of the direct work in connection with the operation of the greatly-increased traffic over the company's eastern lines, has been appointed Vice-President & General Manager, Atlantic Region.

INDIAN RAILWAY CONFERENCE ASSOCIATION

Mr. G. E. Cuffe, General Manager, Bengal & Assam Railway, has been elected President of the Indian Railway Conference Association for 1944-45. A portrait and biography of Mr. Cuffe, in connection with his appointment as General Manager, Bengal & Assam Railway, were published in our January 21 issue.

L.M.S.R. APPOINTMENT

The L.M.S.R. announces that Mr. J. R. Pike, Assistant to Chief Commercial Manager (Goods), has been appointed Assistant Chief Commercial Manager (Goods), in succession to Mr. W. Hanlon, who is retiring on account of ill-health.

Mr. D. H. Keene, A.M.I.Mech.E., A.M.I.Loco.E., Machinery Assistant to the Works Superintendent, Locomotive Works, Derby, L.M.S.R., has been released on loan to the Government of India, and will take up shortly an appointment as Industrial Planning Officer (General), Department of Supply, Calcutta.

Mr. M. Arnet Robinson, Director & General Manager of Coast Lines Limited, has joined the board of the Belfast Steamship Co. Ltd.

Captain A. R. S. Nutting, M.C., Vice-Chairman, and Mr. A. A. Lough, a Director, of Coast Lines Limited, have joined the board of Tyne-Tees Steam Shipping Co. Ltd.

The late Colonel Stuart Low, who was Acting Chairman of the West of India Portuguese Guaranteed Railway Co. Ltd., left £22,046.

Mr. R. A. Davis, M.B.E., who was appointed last year to succeed Mr. R. A. Riddles as Deputy Director-General, Royal Engineer Equipment, Ministry of Supply, was born in 1898. He saw military service from 1915 to 1919, and afterwards joined the former L.N.W.R., with which he served for eighteen months in the District Manager's Office, Chester. Mr. Davis then entered the motor industry; in 1925 he joined the General Motors Corporation, and in 1933 was transferred to Vauxhall Motors Limited. As he was on the Reserve List, he was called up at the outbreak of the present war, and went to the Ministry of Supply, where he was concerned at first with wheel-vehicle production in the United

Kingdom. Later he was appointed, as a Deputy Director-General, to the British Supply Mission in Washington, whence he



Mr. R. A. Davis

Deputy Director-General, Royal Engineer Equipment, Ministry of Supply

returned in July, 1943, to become Deputy Director-General, Royal Engineer Equipment, when Mr. Riddles was released from that position at the request of the L.M.S.R.

Brigadier A. W. Griffin, who last year was appointed Director, Royal Engineer Equipment (B), Ministry of Supply, served with the Metropolitan Railway from 1904 to 1914, and gained experience in many departments; he was associated closely with the workshops reorganisation necessitated by the change from steam to electric traction, and at the outbreak of war held the position of Assistant to Works Manager. He was mobilised with a Territorial regiment, but



Brigadier A. W. Griffin

Director, Royal Engineer Equipment (B), Ministry of Supply

was transferred to the Royal Engineers. He proceeded to France in 1915, and a year later was commissioned in the field, and was appointed Staff Captain at G.H.Q., B.E.F., with the Director of Railways. In 1918 he was promoted Lt.-Colonel, and appointed Chief Storekeeper of the largest B.E.F. depot, containing all requirements for railways, roads, docks and inland waterways, which during 1915-18 handled over 1½ million tons of technical stores. When the Disposals Board took control of the depot, he acted as Manager on behalf of the board. The contents of the depot were sold to a syndicate, of which Brigadier Griffin was appointed General Manager. In 1924, after all sales had been effected on the Continent, some 25,000 tons of materials of British standard types were brought to this country, and formed the basis of a branch of Hughes Bolckow & Company (a firm associated with Dorman, Long & Co. Ltd.), of which he was appointed Managing Director, as well as to a seat on the board of its associated company, the Hughes Bolckow Shipbreaking Company. After the voluntary liquidation of the undertaking in 1930, Brigadier Griffin formed his own business of engineers and contractors' merchants. In September, 1939, at the request of the Director of Transportation, he returned to the Army, and has been mainly responsible for planning and specifying the requirements for all the functions of the Directorate of Transportation, which has included the building and equipment of railways in many parts of the world, the provision of dock and harbour facilities, and the requirements concerned with their operation and maintenance.

Lord Reith and Sir John Wardlaw-Milne, M.P., have been elected to the board of Cable & Wireless Limited. Lord Reith was Minister of Transport in 1940. Sir John Wardlaw-Milne is Chairman of the King's Lynn Docks & Railway Company.

Señor M. Barreiro Villalobos has been appointed Manager of the Argentine Railway Advertising Office, in succession to Mr. C. M. Holt. Señor Barreiro Villalobos relinquishes his position as Publicity Manager, Buenos Ayres & Pacific Railway, to take up his new appointment.

At a meeting of the Irish Railway Clearing House Committee on January 27, Mr. A. P. Reynolds, Chairman of the Great Southern Railways Company, was re-elected Chairman of the Committee.

Mr. Alan P. Good, in pursuance of a policy of concentrating his activities, has resigned, as already announced, from the boards of a number of subsidiaries of Heenan & Froude Limited. Last year he resigned also from the boards of Messier Aircraft Equipment Limited and B. W. Parsons Limited, and recently he has resigned from those of Toledo Woodhead Springs Limited and Darwins Toledo Overseas Limited.

Mr. J. R. Fletcher, Acting District Locomotive Superintendent, Sunderland, L.N.E.R., who, as recorded in our December 3, 1943, issue, has been appointed District Locomotive Superintendent, Burntisland, was educated at the Royal High School, Edinburgh, and com-



Mr. J. R. Fletcher

Appointed District Locomotive Superintendent, Bursledon, L.N.E.R.

meuced an apprenticeship at Cowlairs Works, North British Railway, in 1910. He was appointed Brake Inspector in 1918, and in the next year was made Locomotive Shedmaster, Perth. He became Running Foreman at St. Margaret's in 1926. He held positions as Locomotive Shedmaster at Thornton (1933) and York (1938) before becoming Acting District Locomotive Superintendent, Sunderland, in 1942.

Mr. George Dow, Information Agent, L.N.E.R., who, as recorded in our January 14 issue, has been re-designated Press Relations Officer, was educated at Brighton College and joined the L.N.E.R. as a junior clerk in 1927. After five years' experience in the Works & General and Press Sections of the Chief General Manager's Office, he was appointed District Agent in



Mr. George Dow

Re-designated Press Relations Officer, L.N.E.R.

the Commercial Advertising Department. In 1937 he was attached to the Advertising Department's headquarters for special duties in connection with design and lay-

out matters arising out of the numerous station improvements then being initiated throughout the system. He was appointed Information Agent in 1939. During most of his railway career Mr. Dow has made a close study of public relations work and matters connected with industrial design. He was railway correspondent for the erstwhile publication, *Design for Today*, and his diagrammatic maps were adopted by the L.N.E.R. and L.M.S.R. for carriages, posters, and timetables. He has written many articles on railway subjects for various periodicals and is at present engaged on the preparation of a history of the former Great Central Railway.

Mr. A. F. Moss, Acting District Goods & Passenger Manager, Peterborough, L.N.E.R., who, as recorded in our January 21 issue, has been appointed Acting District Superintendent, Manchester, joined the Advertising Department, York, North Eastern Railway, in 1907 as a clerk. Later he served at Starbeck and Leeds, before joining H.M. Forces in December, 1914. He resumed his railway activities at Wolsingham in May, 1919, and occupied in succession positions as Relief Stationmaster; Staff Clerk, Superintendent's Offices, York and Hull; Traffic Agent, New Bridge Street, Newcastle; Staithes Superintendent, Blyth; Yardmaster, Hull; Goods Agent, Newcastle; and Assistant District Goods Manager, Newcastle. In January, 1943, he took over the position which he now vacates.

Mr. K. R. Ellson, Assistant to Traffic Manager, Southern Railway, who, as recorded in our January 21 issue, has been appointed Assistant (Public Relations) to the Advertising & Public Relations Officer, was educated at St. Lawrence College, Ramsgate, and joined the Engineer's Department, Southern Railway, in 1923. After considerable experience with the New Works Department, in which he served as Resident Engineer on the construction of new stations and widenings, in 1933 he was appointed Assistant to the Chief Engineer



Mr. K. R. Ellson

Appointed Assistant (Public Relations) to the Advertising & Public Relations Officer, S.R.

(Special Purposes). A year later he was transferred to the Traffic Department and appointed Assistant to the London East Divisional Superintendent, and after-



Mr. A. F. Moss

Appointed Acting District Superintendent, Manchester, L.N.E.R.

wards Assistant to the Traffic Manager, dealing with new works and station improvement schemes. At this time also he was responsible for conducting negotiations with traders relative to private sidings and other accommodation. In May, 1940, Mr. Ellson was seconded to the Railway Unit of the L.D.V. to assist with the provision of certain defence works. In 1941 he was appointed Lt.-Colonel, Home Guard, in charge of works for the Southern Railway Home Guard, and, in 1942, Commanding Officer of the 12th Surrey (3rd S.R.) Battalion, Home Guard. He is an Associate Member of the Institute of Transport.

Mr. G. R. Walter, Assistant (Public Relations) to the Advertising & Public Relations Officer, Southern Railway, who,



Mr. G. R. Walter

Appointed Assistant (Advertising) to the Advertising & Public Relations Officer, S.R.

as announced in our January 21 issue, has been appointed Assistant (Advertising), was educated at King's College School and Imperial College. After engineering

experience in tube construction as pupil to Sir Harley H. Dalrymple Hay, he joined the Southern Railway in 1926 in the Chief Engineer's (New Works) Department, where he served as Resident Engineer on various station reconstructions and widenings. He was transferred in 1932 to the General Manager's Advertising & Public Relations Department, and became Indoor Assistant in 1936, and Public Relations Assistant in 1938. For two years before the war he was in charge of joint advertising schemes with resorts. In September, 1941, Mr. Walter was lent to the Ministry of War Transport to act as Regional Fire Prevention Officer to that Ministry; he returned to the Southern Railway in September, 1942. He is an Associate of City & Guilds of London Institute, and an Associate Member of the Institution of Civil Engineers.

Lt.-Colonel Frederick W. Okie, Officer Commanding the 727th Railway Operating Battalion, U.S.A. Army, has been awarded the Soldier's Medal for extraordinary heroism, not in action. Colonel

Okie, who is also the possessor of the Legion of Merit, was in peacetime Division Superintendent, Birmingham, Alabama, Southern Railway System.

We regret to record the death on January 20, at the age of 68, of Mr. H. H. Hunter, C.B.E., LL.D., at one time Unofficial Member for Uganda of the Kenya & Uganda Inter-Colonial Railway Council.

Mr. W. A. Dobson, Acting Permanent Way Engineer (Railways), London Passenger Transport Board, who, as recorded in our January 14 issue, has resigned that position to take up an appointment with Guest, Keen & Nettlefolds Limited and associated companies as Technical & Commercial Representative, entered the service of the former North Eastern Railway, in the Chief Engineer's Office, in 1911. In the next year he was transferred to the District Engineer's Office, Newcastle, where he remained until 1926, with the exception of the period from 1914 to 1919, during which he served with the Northumberland Fusiliers, Royal

Engineers and Royal Garrison Artillery. In 1926 Mr. Dobson went to the District Engineer's Office, Kings Cross. In 1929 he joined the Underground Electric Railways, and has served since 1933 with the London Passenger Transport Board.

We regret to record the death on January 24, at the age of 66, of Mr. H. L. Critchley, O.B.E., formerly General Manager, Babcock & Wilcox Limited, Renfrew.

Mr. C. W. Reeve has resigned the appointment of Managing Director of the Associated Equipment Co. Ltd. Mr. Reeve, who remains a Director of the company, was re-elected Chairman at a recent meeting of the board. No new appointment of Managing Director is being made.

Mr. S. T. Ward has retired from the position of Indoor Assistant to the Traffic Manager, Great Northern Railway (Ireland), after 51 years' service with the company.

South Indian Railway Co. Ltd.

Extraordinary General Meeting

An extraordinary general meeting of the South Indian Railway Co. Ltd. was held at Winchester House, Old Broad Street, London, E.C.2, on February 4. Sir Ernest A. S. Bell, C.I.E., Chairman & Managing Director of the company, presided.

The Chairman said that, with the issue of the report and accounts for the year ended March 31, 1943, stockholders had been notified that a provisional settlement had been agreed between the Secretary of State and the board for the termination of the company's contract before the first option date, i.e., December 31, 1945. The circular letter dated January 21, which covered the notice convening the meeting, had given them, he thought, a fairly comprehensive picture of the proposals, to consider which was the reason for the present meeting.

In October, 1942, the board had received a communication from the India Office informing it that the Government of India had expressed a desire to terminate the company's contract for the working of the South Indian Railway in advance of the next option date. The board had given very careful consideration to that proposal which, in view of the known policy of the Government of India to nationalise the railways at the earliest opportunity, it felt could not lightly be disregarded; and, after sounding a few of the principal stockholders and ascertaining that, provided suitable terms of purchase could be arranged, they would be in favour of a sale to the Government of India, the board had proceeded to negotiate terms with representatives of the Secretary of State.

That the stockholders' capital would be repaid in full was not in dispute, but naturally there was a wide divergence of views as to the additional price which the Government of India should pay to purchase the stockholders' interest in the railway. Due to the different method of approach to the question adopted by the Government of India and by the board there had been a big difference between the figure arrived at on either side, and at the final meeting with the representa-

tives of the Secretary of State the board had been made acquainted with the figure of the Government of India and told that it was necessary to find a bridge between the two figures. The board had put forward an intermediate figure, which represented a point about two-thirds of the way across the bridge in the company's favour, and this finally had been accepted by the Government of India.

Comparing the probable net return to stockholders if the contract remained in force up to December 31, 1945, with what they might expect to receive net during the same period if the offer of the Government of India was accepted, it was calculated that there would be a net loss in interest of about 3½ per cent., as against which acceptance of the present offer would result in their receiving 10 per cent. in capital appreciation.

In view of the long delay which had occurred in the final settlement of the affairs of some other Indian railways now in liquidation, he drew attention to the condition of the present settlement, which had been accepted, that all payments due to the company were to be made on specific dates and without any deductions, and that no new claims or counterclaims were to be put forward by either party.

The board recommended the stockholders' acceptance of those proposals.

When all the company's dues had been received and the liquidation was approaching completion, there would be a further payment to stockholders, but it was not possible at the present stage to foreshadow what that would be. Unfortunately, the amount the company would receive on account of surplus profits for the year now current was gravely prejudiced by an amendment made in 1941 of the Indian Income Tax Act, the effect of which was that, having already paid income tax for the year 1943-44, it would have again to pay tax in 1944-45, although in the year 1944-45 it would now have no earnings.

He came to another aspect of the resolution which he would propose shortly: he referred to the compensation amount-

ing to £17,000, which the stockholders were asked to sanction in favour of the directors and London staff, including consulting engineers and auditors. In making its offer the Government of India had stated that the sum of £1,112,500 was inclusive of reasonable compensation to those who lost their directorships and employments, and it might occur to some stockholders that there was some connection between the "odd" amount of £12,500 and that compensation. He admitted that there was a connection, and he thought they were entitled to an explanation of the difference between that sum and £17,000. The reason was twofold, and referred partly to the directors and partly to the staff of the London office.

In respect of the directors, their remuneration was derived partly from the sum which the Secretary of State permitted to be charged under that head to working expenses account, and the balance was made up by the grant which the stockholders had voted from their own surplus profits. Since 1941 the grant from surplus profits had been a fixed sum of £1,500 a year. He need perhaps hardly say that as Chairman & Managing Director he had taken a leading part in the negotiations, and it seemed to him that it was for the Government of India to agree and pay to the directors the compensation in respect of their loss of fees chargeable to working expenses, leaving them to make their own arrangements with the stockholders in respect of that part of their remuneration which was payable out of surplus profits. The Government of India, however, although adding a sum for compensation to the purchase price, had left it to the stockholders to deal with the matter, and as the board had to approach the stockholders in respect of the whole quantum of compensation a consolidated figure covering both parts of the directors' remuneration had been included in the resolution. That accounted for rather more than half of the increase.

In respect of the London office staff, the original estimate had been made out in October, 1942, and since that date there had been two increases in war bonus due to increased cost-of-living, and it was necessary to revise the estimate.

The resolutions before the meeting were carried.

TRANSPORT SERVICES AND THE WAR-228

G.W.R. Record Wagon Clearance

As the result of a special effort, the G.W.R. created a record during the week-end of January 29-30 by unloading 28,659 wagons and making them available for further use.

War Emergency Asphalt Roads

In response to the request of the Government to all industries to exercise the utmost economy in the use of transport, materials, and labour, the British Standards Institution has set up a war emergency specification (No. 1152 of 1944) for asphalt roads. This is the outcome of the work of a joint committee consisting of representatives of the Ministry of War Transport, the War Office, and the Road Research Laboratory, together with members of the Asphalt Roads Association. The new specification does not introduce a fresh set of standards in rolled asphalt, but, as stated in the foreword, it is essentially one to meet a war emergency, and is in effect an abridged edition of B.S.S. No. 594. Thus a simplified document is available for the guidance of engineers and surveyors, with provisions for the use of materials not normally covered by the existing standard. This provides for the use of local aggregates (e.g., sand and stone) so as to obviate unnecessary transport of materials, and to afford alternatives to those aggregates formerly used in standard construction which are now employed on works of higher priority. We refer to the new specification in an editorial note, page 130. Copies may be obtained (price 2s.) from the British Standards Institution, 28, Victoria Street, S.W.1.

Wartime Sidings

To deal with traffic for new Army storage depots, additional airfields, and increased home agriculture, 48 additional private sidings were built on the L.M.S.R. in 1943 in areas previously off the beaten track. This brings up to 246 the total additional sidings provided on the L.M.S.R. as a result of war conditions.

Some figures recently revealed officially give an idea of the vast traffic necessitated by airfields alone. Great Britain has been described as an unsinkable aircraft-carrier, airfields now cover 250,000 acres. The estimated expenditure on aerodromes and other establishments for the Allied Air Forces in Great Britain is approximately £615,000,000. The total area of paved runways and perimeter tracks is almost 160,000,000 square yards, the equivalent of 9,000 miles of 30 ft. wide road. The airfields programme to date has entailed the carriage of 30,000,000 tons of ballast, etc. For buildings, 1,000,000 tons of steel and cast iron have been used. The work is undertaken by the Directorate of Works, Air Ministry. Most airfield sites are remote from towns. The Air Ministry Works Department has also constructed since 1939 hundreds of storage dumps for bombs, aviation fuel depots, equipment stores, many training schools, and command headquarters, as well as extending peacetime establishments. Apart from its work for the R.A.F., the department has built many airfields for the U.S.A.A.F.

Spanish Motor Traffic Cuts

In view of the decision of Great Britain and the U.S.A. to restrict oil supplies to Spain, the Spanish authorities have taken steps which will result in the drastic curtailment of motor traffic throughout the country. The official announcement, issued on February 1, said: "The Commissariat for

Liquid Fuel has investigated the methods of making the measures least damaging to industry while applying the utmost restrictions to private motoring and public transport." It is reported that the bus services between Madrid and Valladolid and Madrid and Leone have been suspended. The recent steps taken by the United Nations, which have resulted in the withdrawal of oil supplies from Spain, are in consequence of the un-neutral attitude of the Spanish authorities in favour of our enemies.

Rome-Bucharest Air Service Discontinued

According to an official "Axis" Italian announcement, the Ala Italiana air transport company, formerly known as the Ala Littoria, has discontinued its air service between Rome and Bucharest, via Tirana and Sofia.

Swiss-Italian Traffic

War operations in Italy have had considerable effect on the traffic with Switzerland. After the air attacks on Milan the goods traffic on the Gotthard and Simplon routes came to a complete stop. In September, 1943, passenger traffic over the southern frontier of Switzerland likewise ceased. For a long time, too, no trains ran across the frontier with Savoy.

Increase in Norwegian Passenger Fares

Passenger fares on the Norwegian railways were increased by 25 per cent. from November 1, 1943. The increase takes the form of a special war supplement for the benefit of the Treasury, and tickets have been overprinted with a brief note emphasising the character of the supplement. This war supplement is not levied in respect of weekly and monthly seasons, and students' tickets, in order to prevent the cost of living (and thus the general price level) from being influenced adversely.

Swiss Railway Fare Increases

The Swiss Federal Railways recently announced that fares and rates on all Swiss railways were to be increased from March 1 next, but the German Official News Agency subsequently reported from Zurich that the increases will not come into force until April 1. Rates in respect of goods, express goods, luggage, and livestock are to be increased by 10 per cent., but no increase is to be applied for distances over 150 km. (93 miles). This is in special consideration of the demands advanced by Geneva and the Canton of Ticino, the economic life of both of which would have been affected particularly adversely through the application of a standard increase, as they are some distance from the economically more important regions in the north and the centre of the country. In respect of these two regions, the increase is to be approximately 6 per cent.

Single passenger fares will be increased by 13 per cent., but return fares, which represent about 80 per cent. of the railway passenger traffic in Switzerland, will be higher by 10 per cent. only. Moreover, no higher increase will be applied to return tickets than fr. 1.70 for the second class and fr. 1.20 for the third class. The price for family tickets will not be increased. No decision has been taken yet, but it is contemplated to raise the age limit for children travelling free from 4 to 6 years, and for children paying half fare from 12 to 16 years, as a compensation for passengers travelling with children.

The higher yield accruing from these increases is expected to amount to fr. 25 to 30 million per annum for the Swiss

Federal Railways, and to fr. 10 to 12 million for the private railways and shipping services on the lakes. In the case of the Swiss Federal Railways, the surplus accruing from these increases is to be employed exclusively for railway financial reconstruction and is to be paid into a special fund. Of the increased receipts of the privately-owned transport undertakings, 20 per cent. is to be paid into a special equalisation fund, out of which working losses are to be covered. This fund is to be administered jointly by the Railway Department and the private transport undertakings.

Franco-Italian Rail Traffic

Negotiations are reported to be in progress between representatives of the French National Railways and the Italian State Railways, customs, and police officials, with a view to resuming rail traffic between France and Italy via Mentone and Ventimiglia. Ventimiglia Station would be reopened as an international station with both French and Italian railway and customs offices.

German Leave-Train Sleepers

The German Reichsbahn has now placed in service heated goods vans, convertible into sleeping vans, for soldiers on leave trains. The vans have windows, and a compartment containing three washing basins, a lavatory, and a cooker. The main compartment has 36 sleeping bunks in three tiers. The whole can be converted in 15 min. The vans have been used for potato traffic in severe winter weather, but are mostly employed on the leave trains.

Special Measures in the Ruhr

The effect of Allied air attacks on the Ruhr territory is reflected in the fact that the German Minister of Transport found it necessary last autumn to establish a special office to deal with the problem of maintaining communications, and to confer with all the authorities concerned in the Rhine-Westphalian area, including the municipal authorities of the towns chiefly affected, such as Münster and Düsseldorf, and the transport controllers at Essen, Wuppertal, and Cologne. The pooling of the resources of the various transport undertakings and distribution of help, in the form of men or materials, is one of the principal tasks of the officer in charge of the new organisation. Both railway and tramway routes in the Ruhr are numerous and complicated and must have suffered greatly from the raids.

German Control of Danish Railways

Since the report published in our columns on January 21 (page 70), further details have come to hand via Stockholm of the steps taken by the German authorities to exercise direct control over the Danish State Railways. A German Commissioner for the Danish Railways has been appointed to organise a German administration in the "anti-invasion" province of Jutland. Large numbers of German railway officials are said to have been brought in to act as observers and to study Danish working methods. The General Manager of the Danish State Railways recently summoned a conference of railway trade union officials, and told them that it was their duty to give information to the Germans, as the Germans were entitled to use the railways of Denmark under the agreement of April, 1940. It is reported that the men expressed the hope that they would be freed from duty in the event of an Allied invasion. They were also said to have been promised that quiescent observers would not be introduced among them.

The Dover Railway Centenary

The official celebration to mark the completion of the first railway linking Dover with the Metropolis was held at Dover on Tuesday, February 6, 1844, when some of the principal personages and civic authorities from across the English Channel (from Calais, Boulogne, and Ostend) were present to honour the historic occasion. A procession with bands made its way to the terminus, and about 4 p.m. the whistle of the locomotive *Shakespeare* was heard. Shortly afterwards the train of four carriages, bringing the Chairman and Directors of the South Eastern Railway, drew up at the terminus, where the party was welcomed by a salute from the guns of Archcliff Fort. Later, some 300 guests sat down to a "sumptuous dinner" in the theatre, and festivities continued until a late hour. The choir from Canterbury Cathedral assisted in entertaining the company. On the next day, February 7, 1844, the railway was opened for public traffic, and six trains were provided in each direction, as shown on the accompanying facsimile of the original timetable, as advertised in the columns of our constituent journal *The Railway Times* :—

LONDON AND DOVER RAILWAY OPEN THROUGHOUT on and after the 7th day of February, 1844.

DOWN TRAINS FROM LONDON.

8 a.m.	9 30 a.m.	11 30 a.m.	1 30 p.m.	4 p.m.	5 30 p.m.	7 30 p.m.
1st, 2d, and 3d class.	1st, 2d, and 3d class.	1st, 2d, and 3d class.	1st, 2d, and 3d class.	1st, 2d, and 3d class.	1st, 2d, and 3d class.	1st, 2d, and 3d class.

DOWN SUNDAY TRAINS.

9 30 a.m.	1 30 p.m.	6 p.m.
1st, 2d, and 3d class.	1st, 2d, and 3d class.	1st, 2d, and 3d class.

UP TRAINS FROM DOVER.

7 40 a.m.	6 45 a.m.	9 a.m.	11 a.m.	1 p.m.	3 p.m.	6 15 p.m.
1st, 2d, and 3d class.	1st, 2d, and 3d class.	1st, 2d, and 3d class.	1st, 2d, and 3d class.	1st, 2d, and 3d class.	1st, 2d, and 3d class.	1st, 2d, and 3d class.

UP SUNDAY TRAINS.

9 30 a.m.	12 30 p.m.	4 50 p.m.
1st, 2d, and 3d class.	1st, 2d, and 3d class.	1st, 2d, and 3d class.

Bills, with full particulars, may be had at all the stations.

By order of the Board,
JOHN WHITEHEAD, Secretary.

February 3, 1844.

Facsimile advertisement from "The Railway Times" of February 17, 1844

In war conditions, and especially while Dover is still within the range of enemy guns, it was obviously impracticable for the Southern Railway to celebrate the centenary adequately, but on Monday last the company opened an exhibition of prints, photographs, etc., at the Maison Dieu, Dover, by kind permission of the Mayor and Corporation of Dover, and this is remaining open until February 12.

The opening ceremony was performed by Colonel the Hon. J. J. Astor, D.L., M.P. for Dover, who himself has railway associations as a Director of the Great Western Railway Company. Among those present were :—

Dover Corporation.—The Mayor of Dover (Ald. J. R. Cairns, J.P.); Alderman G. Gore, F. H. Morecroft, G. M. Norman, Captain F. R. Powell, H. E. Russell, J.P.; Councillors Mrs. F. M. Boyton, J. H. Brazier, J.P., E. A. Bushell, A. R. Dawes, F. G. Dolbear, R. L. Eckhoff, J. P. Fish, W. H. Gates, W. J. George, A. T. Goodfellow, J.P., W. G. Jeffery, J.P., Mrs. F. K. Langley, W. L. Law, J.P., W. J. Pudney,

H. A. J. Ryeland, J.P., J. Williams, Major J. Martin; Messrs. S. R. H. Loxton, O.B.E., M.A. (Town Clerk); W. Ransom (Deputy Town Clerk); P. V. Marchant, A.M.Inst.C.E. (Dover Borough Engineer); F. V. How (Deputy Borough Engineer); and H. A. Saddleton (Police Superintendent).

Southern Railway.—Colonel Eric Gore-Browne, D.S.O. (Deputy-Chairman); Messrs. R. M. T. Richards (Traffic Manager); V. A. M. Robertson, C.B.E., M.C. (Chief Civil Engineer); C. Grasemann (Public Relations Officer); G. Ellison, C.B.E. (Civil Engineering Consultant); W. J. England (Superintendent of Operation); R. H. Hacker (Continental Superintendent); R. E. L. Maunsell; P. Nunn (London East Divisional Superintendent); D. Sheppy (Eastern Divisional Locomotive Superintendent); A. Roberts (Eastern Division Engineer); Captain H. J. Greenop; A. C. Streatfield (Public Relations Department, Press); H. G. Davis (Public Relations Department, Historian); W. D. N. Durston (Public Relations Department, Photographer); A. Huckle, M.B.E. (Stationmaster, Dover); H. C. Wood (retired Assistant Divisional Marine Manager).

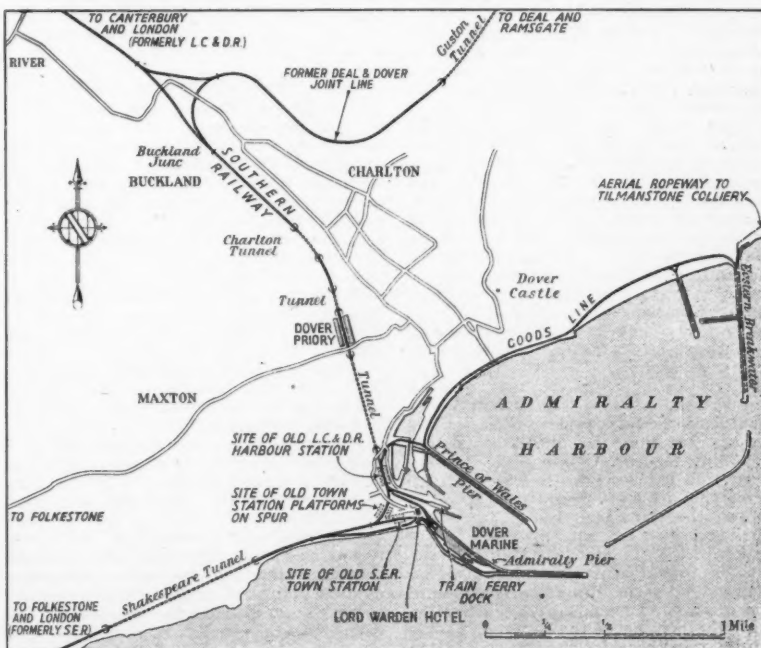
Others.—Messrs. Rutley Mowll; John Mowll; Vice-Admiral Sir Aubrey H. Smith (Chairman, Dover Harbour Board); Messrs. C. Byford (General Manager, Dover Harbour Board); F. Whitham (H.M. Customs Officer, Dover); F. Widgery (Secretary, Dover Rotary Club & Borough Electrical Engineer); the Rt. Rev. the Bishop of Dover; Messrs. A. C. Leney, J.P.; H. T. Hawksfield, J.P.; A. Baynton (General Manager, East Kent Road Car Co., Ltd.); A. Southam, O.B.E., J.P.; The Head Postmaster, Dover; Major R. M. Thompson, M.C. (Port Security Officer); Captain H. St. L. Nicolson, D.S.O. (Chief Staff Officer to Flag Officer Commanding Dover); Sir Charles Igglesden, J.P. (Editor & Proprietor *Kentish Express*); Messrs. C. F. Klapper (*Modern Transport*); Charles E. Lee (*The Railway Gazette*); and A. V. Webster (Editor, *Kent & Sussex Courier*).

The party from London left Charing Cross at 9.15 a.m., and proceeded by the S.E.R. route to Dover Priory Station. Precisely at noon, Mr. C. Grasemann, Public Relations Officer, Southern Railway, called on His Worship the Mayor of Dover

to open the proceedings, who asked Colonel Astor to declare the exhibition open. A tour of the exhibits was then made. There are in all 86 old prints, photographs, and newspaper reports, illustrative of the construction and early days of the various sections of railway line between London Bridge and Dover, via the original route through Redhill. Where possible, 1944 photographs from the same points are shown in juxtaposition for comparison. Exhibits in a case included a *Bradshaw* of March, 1844, the first issue giving times to Dover; and a copy of *The Railway Times* for February 24, 1844, containing the account of the official opening to Dover, publication of which had been delayed (as expressed in an apologetic note) by reason of the heavy space requirements of financial and legal notices.

Acknowledgement is made in a chaste and well-produced but "austerity" catalogue to the following who have loaned items to the exhibition, namely: Messrs. Amos & Amos, C. N. Anderson, F. E. Box, Folkestone Public Library, J. L. Harrington, R. C. Heney, A. Hooper, I.L.D.; *The Illustrated London News*, Mr. J. A. Kay (Editor, *The Railway Gazette*), *Kent Messenger*, Messrs. Charles E. Lee, A. C. Leney, J.P., J. Pelham Maitland, M.B.E., J. H. Mowll, M.B.E., W. Nichols, R. H. Petherick, L. Sears, H. E. W. Smith, *Tonbridge Free Press*, and the Victoria & Albert Museum.

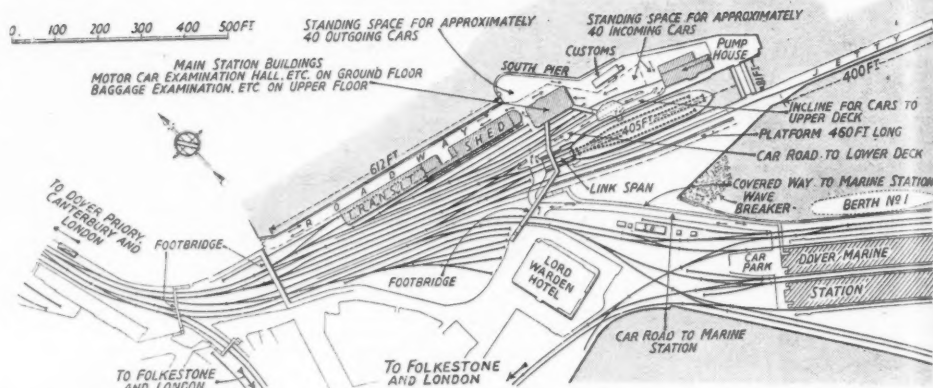
At the luncheon which followed the opening of the Exhibition, Colonel Astor proposed the toast of "The Southern Railway." He paid tribute to the memory of the late Mr. Holland Martin, who had hoped to be present at the ceremony. The railway link established one hundred years ago between London and the Continent, through the historic gateway of Dover, had been of invaluable service to the country. In peace it had carried thousands of travellers; in the last war it was the main supply route for our armies in France; and all knew the part that it had played in the miracle of Dunkirk. In response, Colonel Gore-Browne



Sketch plan of the railways around Dover, showing sites of old stations

said we were celebrating this centenary in the front line, and he spoke of the devotion to duty and civic pride of the citizens of Dover during the past four years. On his invitation the company stood in silence in memory of Mr. Holland Martin.

General arrangement of the railways approaching Dover Marine Station and the train ferry dock; the latter was opened on October 14, 1936



Ministry of War Transport Accident Report

Middle Drove Crossing, L.N.E.R.—October 11, 1943

Colonel A. C. Trench inquired into the accident which occurred in a thick fog at about 7.33 a.m. on October 11, 1943, on the L.N.E.R. at Middle Drove level crossing, between Whittlesea and March, when the 10.20 p.m. express, Edinburgh to Colchester, running at about 55 m.p.h., wrecked a motor car, killing the driver and two passengers and seriously injuring two others. There were no injuries to passengers or staff of the train.

The crossing, somewhat on the skew, has 12-ft. occupation gates and single spring-hinge wickets. The line is straight with clear view of over two miles in each direction and the view along the line from the road is good on each side. There is a gate house at the crossing and a platelayer's hut some 75 yd. east, with a door at the end away from the crossing; also a block repeating bell on a telegraph pole near the crossing and, outside the gatehouse, a telephone on an omnibus circuit, communicating with adjacent signal boxes and elsewhere. Standing in the hut with the door open, under average weather conditions, it is possible to hear the block bell. The gates are opened about 30 to 35 times a day, but at night only exceptionally. Before the war the crossing was staffed by a man and his wife living in the gatehouse, but he was called up and the crossing was then staffed in daylight by other employees. The only shelter for the daytime gatekeeper is the hut, but in view of its distance from the crossing, he was issued with oilskins, to enable him to remain near the gates in adverse weather. The legal status of the crossing is somewhat obscure, but the point is not of importance to the case, as it has been staffed for many years.

Driver Russell, of the express, knew the road well. He whistled at Black Drove signal box, $\frac{1}{4}$ mile in rear of the crossing; the first thing he knew was the impact with the car. Passing the crossing he saw the gatekeeper with his hands up as though attempting to stop it. He stopped the train as quickly as possible. Crossing keeper Chandler had taken over the keys at 7 a.m.; he was in the platelayers' hut and heard the block-bell signals for a goods train, which passed soon after he came on duty. He said he heard the hooting of the car and, having heard no further block bells, opened the far gate first and then the one where the car was standing. Crossing in front of it

he heard or felt the train coming, held up his hands and shouted. He had to jump clear. It is possible that the noise made by the starting up nearby of a farm tractor engine may have drowned that made by the train. Although some contrary—though not conclusive—evidence was tendered, Colonel Trench accepts the gatekeeper's statement that he did open the far gate first. He attributes no blame to the engine driver but places responsibility for the accident on the gatekeeper who, in such bad visibility, should have telephoned to an adjacent box before opening the gates, as he frankly admitted. He knew that the block bell was not too easily audible. His sight and hearing were good. He had been a crossing keeper for the last four years and was on friendly terms with the car driver, but denied that any pressure was exerted on him to let the vehicle over. The bell equipment was found to be in order; Colonel Trench has no doubt that it rang and Chandler failed to notice it.

Recommendations and Remarks

In clear weather visibility is such as to make it impossible to justify any recommendation of more elaborate warning equipment, and road traffic after dark is negligible. There remains, however, the question of fog. For this the telephone provides adequate safety, if always used, but there is a natural tendency to avoid unnecessary delay to any car anxious to cross. Crossing keepers and signalmen said there was no appreciable delay in effecting communication on the omnibus telephone circuit and that it was often used in fog, for the passage of heavy tractors or cattle. A bell in the block circuit is distinctly less satisfactory than a continuous indication and the circuit in this case is understood to be such that the provision of indicators offers no serious difficulty. Their installation would be of permanent value and justified, though only to deal with fog and hours of darkness.

Colonel Trench concludes: "I do not regard as satisfactory, even as a wartime expedient, the arrangements whereby the daytime crossing keeper was expected either to stand about in the open at the gate, or to take shelter in the platelayers' hut, located at such a distance from the crossing that the sound of the block bells was liable not to be heard; the provision

of oilskin clothing is a palliative which cannot be compared with proper shelter against the weather in an exposed situation such as this, and I think that the company should provide, adjacent to the crossing, some elementary form of shelter such as a fogmen's hut, which the crossing keeper could occupy at times when it was desirable that he stayed in close proximity to the crossing." He also points out that the conditions and circumstances at the crossing are similar in some respects to those which obtained at the time of the accident at the Wick Lane crossing on the Shenfield—Southend line, L.N.E.R., on June 12, 1937, and invites attention to the remarks made on that case by Major G. R. S. Wilson (see *The Railway Gazette* for November 5, 1937, page 800).

Questions in Parliament

Railway Control Agreement

Mr. G. Mathers (Linlithgow—Lab.) on February 1 asked the Prime Minister if he could state the principle which will be applied in determining the date of the cessation of hostilities, as at that date, or a fixed period thereafter, certain wartime agreements come to an end.

The Prime Minister: No doubt at some date hostilities will cease in the different theatres of war. It is not for me to state what principles the courts would apply in construing the terms of agreements. Nor am I prepared at present to make any statement as to the principles on which the United Nations will proceed in determining any formal date upon which the war will be deemed to be concluded.

Mr. Mathers: Will the Prime Minister realise that I am really trying to obtain in more precise terms what is meant by a statement such as that in the Railway Control Agreement, which says that control will cease at a minimum of one year after the cessation of hostilities; and could he not put the matter further forward than in the statement that he has just made?

The Prime Minister: I certainly see the difficulties but I do not see a way round them.

Sir Herbert Williams (S. Croydon—C.): As a great many agreements have been concluded on the basis of the words "termination of the present emergency," and having regard to the fact that these words appear in the Emergency Powers Act, will Mr. Churchill look into the question?

The Prime Minister: The courts will have to decide upon these matters in the absence of legislation by Parliament.

Mr. A. Bevan (Ebbw Vale—Lab.): In view of the fact that the courts will have exactly the same difficulty as Mr. Churchill, will the Government make inquiries into the matter and determine upon some form in order to guide the courts in the matter?

The Prime Minister: I certainly think the matter must always be considered but although the courts have the same difficulties as we have, it is their business most specifically to solve them as each case arises in the absence of legislation.

Mr. W. J. Brown (Rugby—Ind.): Is there any reason why the Government should not do what it did at the end of the last war, and define a date as marking the end of the war?

The Prime Minister: It will be so much easier to define that date when we have actually reached it.

Ilford Railway Accident

Major Geoffrey Hutchinson (Ilford—C.) on February 2 asked the Parliamentary Secretary to the Ministry of War Transport whether he could make any statement with regard to the railway accident accompanied by loss of life, which took place at Ilford on January 16.

Mr. Noel-Baker: This tragic accident occurred after dark during a dense fog, when one passenger train overtook and collided with another travelling in the same direction. I regret to say that nine passengers were fatally injured, including three members of the United States Forces, and twenty-eight other passengers were detained in hospital. Prompt assistance was rendered by rescue parties of the local Civil Defence Services, and I want to say how greatly we appreciate what they did. The Chief Inspecting Officer of Railways has held his inquiry, but until his report has been received, I am unable to say anything about the cause or causes of the accident. I should like to take this opportunity of expressing my deep sympathy with the relatives of those who lost their lives, and with those who were injured.

Mr. Hutchinson: Will the Parliamentary Secretary be able to make a further statement when the Ministry of Transport's inquiry has been completed?

Mr. Noel-Baker: Yes, sir, if Mr. Hutchinson will put down another question, I will certainly give him an answer.

Director-General of Supply Services

Mr. Ellis Smith (Stoke—Lab.) on February 2 asked the Minister of Supply if he had sanctioned Major-General Gilbert Szlumper, his Director-General of Supply Services, addressing the Engineering Industries Association on January 25.

Colonel E. Duncan Sandys (Joint Parliamentary Secretary to the Ministry of Supply): No, sir.

Mr. Smith: Can we be informed what action has been taken by the Minister in view of the fact that this man took part in political controversy? Is it the practice of civil servants to indulge in political controversy, and, if so, what happens?

Colonel Sandys: I agree that the speech in question did touch upon certain matters of a highly controversial nature and that it was the kind of speech which should not have been made by a civil servant. However, I think members will appreciate that temporary wartime Government officials, who previously have held responsible and prominent positions in business and public life, are liable on occasions to forget that, as civil servants, they are expected to hide their light under a bushel. I have spoken to this official and he fully appreciates the position. He is rendering valuable service to the Ministry, and I propose to leave the matter there.

Mr. Smith: Had this man been a Socialist or a working man, some other action would have been taken, and in view of the fact that action is regularly taken against our people who are responsible for indiscretion, what action does the Minister contemplate taking against this well-placed man?

Colonel Sandys: I have explained to Mr. Smith that I have made the position clear to this official, who fully recognises that he has infringed the regulations, and I think that this question and answer will have the effect of bringing this matter to the notice of other officials similarly placed. It is a difficult position for these people who have only just come into the Government service.

Commander Sir Archibald Southby (Epsom—C.): Does the Parliamentary Secretary not agree that this gentleman is and always has been one of the hardest working individuals in the country?

Mr. Smith: Is the Parliamentary Secretary aware that this civil servant stated at the meeting that he had great experience in Government Departments; that he prided himself on having served in at least six of them, and used that experience for political purposes?

Colonel Sandys: If so, he must have served in each of them for a very short time.

London-Doncaster Passenger Service

Mr. D. J. K. Quibell (Brigg—Lab.) on February 2 asked the Parliamentary Secretary to the Ministry of War Transport what steps he proposed to take to improve the passenger train service to and from Doncaster and Kings Cross.

Mr. P. J. Noel-Baker (Parliamentary Secretary to the Ministry of War Transport): As Mr. Quibell is aware, the passenger traffic on the railways has greatly increased since the war began, but it has been necessary to reduce the passenger train mileage by 30 per cent. in order to carry traffic which is essential to the war effort. As a result, trains in many parts of the country are often crowded. I have, unhappily, no reason to believe that the conditions between Doncaster and Kings Cross are exceptional, and I regret that it is not at present possible to increase the number of trains.

Mr. B. Riley (Dewsbury—Lab.): Is it possible to do anything to minimise the long delays that take place on this line?

Mr. Noel-Baker: Nobody regrets the delays more than we do. It means a great strain on all concerned; but with sickness, fog, shortness of staff and the immensely heavy traffic, I can only say that the railways are doing their best.

Mr. Quibell: Is the Parliamentary Secretary aware that a train for Doncaster left Kings Cross 2½ hours late?

Mr. Noel-Baker: I am afraid there is a good deal of late running. The Government is putting every possible measure into effect.

Canal Transport

Mr. Roston Duckworth (Manchester, Moss Side—C.) on February 1 asked the Parliamentary Secretary to the Ministry of War Transport since the principal canals of the country were under the control of the Government, whether he was satisfied that all of them were in effective use; and whether the Government was concerning itself with the future of the smaller canals not under official control.

Mr. Noel-Baker wrote in reply: I would refer Mr. Duckworth to the reply which I gave to Mr. A. E. L. Chorlton (Bury—C.) on October 8, 1942, about the use made of the canals during the war. The utility of the smaller canals is not being lost sight of in the enquiries which are now being made

into the future of inland waterway transport after the war.

Controlled Road Haulage Undertakings

Mr. Adam McKinlay (Dumbartonshire—Lab.) on February 2 asked the Parliamentary Secretary to the Ministry of War Transport, what qualification must be fulfilled before a road haulage firm could become a controlled undertaking under the Road Haulage Organisation.

Mr. Noel-Baker: The Road Haulage Organisation requires the vehicles to carry, and the office and accounting staff to organise, the long-distance traffic which the Minister of War Transport has taken under his control. The Minister has, therefore, selected for control undertakings which can provide the vehicles and the office staff at the places where he needs them.

Mr. McKinlay: Is it not a fact that the controlled undertakings have just as much power over the hiring companies, who are not masters of their own households and have to comply with their instructions?

Mr. Noel-Baker: Yes, Sir, but the controlled undertakings have to comply with our instructions.

Mr. Adam McKinlay asked the Parliamentary Secretary to the Ministry of War Transport if he would state the number of road haulage firms in Scotland which were controlled undertakings; the number of vehicles operated by each firm at the commencement of the scheme and the number being operated by such firms on the last available date; and the number of hired firms acquired by controlled undertakings during the same period.

Mr. Noel-Baker: There are 53 controlled haulage undertakings, the Head Offices of which are in Scotland. When these undertakings came under control, they operated a total of 1,916 vehicles. They now operate 1,953 vehicles. Three undertakings which had vehicles on hire to the Ministry have been acquired by a controlled undertaking since the control began. If Mr. McKinlay so desires, I will send him particulars of the vehicles operated by each individual undertaking.

Mr. McKinlay: That is the information I want, and which I asked for in the question. Is there any reason why we should not get the answer?

Mr. Noel-Baker: No, Sir, but it would involve a great number of statistics and figures, and I should have to circulate it in the Official Report. I will do that if Mr. McKinlay wishes.

Mr. McKinlay: In giving that information will the Parliamentary Secretary give the circumstances concerning the acquisition of hiring firms by controlled undertakings? And is it not a fact that the hiring people are being pushed out of business and getting nothing for it?

Mr. Noel-Baker: As a general proposition that is certainly not true, but I will gladly look into any cases that Mr. McKinlay cares to send me.

Parliamentary Notes

L.M.S.R. Bill

The London Midland & Scottish Railway Bill was presented to the House of Lords on February 1 and referred to the examiners.

L.N.E.R. Bill

The London & North Eastern Railway Bill was presented to the House of Commons on February 1 and read the first time. The Bill authorises the London & North Eastern Railway Company to establish a savings bank for their employees and others, and to amalgamate therewith the existing savings banks maintained by the company.

Notes and News

Baghdad Bus Services.—Bus services in the city of Baghdad and suburbs was inaugurated on August 28 last, with 23 vehicles, each accommodating some 36 passengers. It is hoped to increase the fleet to 50.

Chilean Train Services.—Some alleviation of the difficult transport situation in Chile has resulted from the introduction on September 13 last, by the State Railways Administration, of two additional trains operating weekly between Valdivia and Loncoche and Valdivia and Osorno.

The Railway Club Annual Meeting.—The annual meeting of the Railway Club is to be held at 57, Fetter Lane, E.C.4, at 2.30 p.m. on Saturday, March 18; it is confined to members. A paper entitled "The Battle of the Gauges" is to be given by the President, Mr. Kenneth Brown. The club was founded as long ago as 1899.

L.N.E.R. General Meeting.—The ordinary general meeting of the London & North Eastern Railway Company will be held at Grosvenor House, Park Lane, London, W.1, at 2 p.m. on Friday, March 3. An extraordinary general meeting will be held afterwards to consider the Parliamentary Bill, details of which are given in our Official Notices on page 151.

Civil Servants and Income Tax.—The staff side of the Civil Service National Whitley Council has sent a letter to a number of Members of Parliament drawing attention to alleged discrimination against civil servants under the "pay-as-you-earn" scheme. It asks the Members to endeavour to have this removed during the proceedings on the present Bill. The letter states that except for salaried railway staffs, the case of which is much the same as theirs, civil servants form the only class of employees so far denied tax remissions on coming within the scheme.

Railway Companies (Accounts & Returns) Order, 1944.—In virtue of his powers under Regulation 56 of the Defence (General) Regulations, 1939, the Minister of War Transport has ordered that the provisions of the Railway Companies (Accounts & Returns) Orders, 1941 (a); (No. 2), 1941 (b); and (No. 3), 1941 (c) (releasing railway companies, in respect of the year 1940, from the obligation to render certain of the accounts and returns prescribed in the First Schedule to the Railway Companies (Accounts & Returns) Act, 1911) shall extend and apply to accounts and returns for the year 1943. Copies of the Order, the Railway Companies (Accounts & Returns) Order, 1944 (S.R. & O. 1944, No. 22), may be obtained from H.M. Stationery Office, or through any bookseller, price 1d. each.

Montreux - Oberland Bernois and Operated Railways.—A record number of passengers was carried in 1942 by the Montreux-Oberland-Bernois Railway (Switzerland), amounting to 1,130,000 compared with 1,110,000 in 1941, and with the pre-war record of 890,000 attained in 1930, and goods tonnage represented the second-highest figure ever attained. Working receipts for 1942 were fr. 2,460,000 (fr. 2,440,000), and working expenditure increased to fr. 2,160,000 from fr. 1,840,000. The profit-and-loss account closed with a favourable balance of fr. 10,621, which was carried forward in full. Among lines operated by the company, the Montreux-Glion Railway showed working receipts for 1942 of fr. 66,780 (fr. 53,180), and working expenses amount

ing to fr. 58,600 (fr. 54,110). The unfavourable balance shown by the profit-and-loss account for 1941 of fr. 22,370 was reduced in 1942 to fr. 9,320.

Cost-of-Living Index.—The official cost-of-living index figure at January 1 was 99 points above the level of July, 1914, showing no change compared with December 1, 1943. In January, 1938, it was 59 points, and in January, 1939, 55 points, above the level of July, 1914.

Gauge Standardisation in Australia.—Mr. E. J. Ward, Minister of Transport & Minister for External Territories, Australia, stated recently that plans were to be prepared for the standardisation of railway gauges throughout the country, and recommended that they should be given an important place in post-war schemes.

Trolleybuses for Istanbul.—According to recent information from Istanbul, the Municipality proposes to establish trolleybus services, but no particulars are available as yet. It is not clear whether the trolleybus is to supersede the tram on certain routes or whether trolleybus lines are planned in addition to the existing tram lines.

Swedish Train Ferry.—It is stated that the train ferry to replace that at present in service between Malmö and Copenhagen, the launching of which was recorded in our January 14 issue, will accommodate 1,800 passengers, and will be provided with three railway tracks. Completion of the vessel, which has been named *Malmöhus*, is expected about the middle of this year.

Madrid Tramways in 1942.—The report of 1942 of the Sociedad Madrileña de Tranvías shows a total of 248 million passengers carried, an increase of 14 millions over the previous year. The new trolleybus services accounted for 3½ millions of the total. Net earnings fell from 5·2 to 4·4 million pesetas, the decrease being attributed to the failure to implement the proposed increase in fares. With the balance brought forward profit amounted to 12·6 million pesetas, and after providing for financial charges and reserves, a dividend is declared of six per cent.

Argentine Maize Traffic.—The Argentine Ministry of Agriculture has issued statistics showing the aggregate tonnage of maize carried by the Argentine railways during 1942-43. Of the total of 2,414,938 tons, 1,103,974 tons was carried by the Central Argentine Railway; 412,870 tons by the Buenos Ayres & Pacific Railway; and 272,373 tons by the Buenos Ayres Provincial Railway. The balance was distributed amongst the other railways, of which the heaviest tonnage was carried by the Rosario-Puerto Belgrano Railway, 203,196 tons, and the Central of Buenos Aires, 157,326 tons.

Swiss Locomotive and Wagon Building Industry.—In addition to repairs to, and supply of spare parts for, locomotives and rolling stock of the Swiss Federal Railways, the Winterthur Locomotive Works is stated to have effected deliveries during 1942 of the mechanical parts for one 6,000-h.p. fast electric locomotive for the Bern-Lötschberg Simplon-Railway; the mechanical parts for one 6,000-h.p. fast electric locomotive for the Swiss Federal Railways; and of two 600-h.p. shunting locomotives for the Swiss Federal Railways; and to have completed various smaller locomotive and rolling-stock orders for railway and industrial concerns, including one for overseas. Two electric locomotives and fifty wagons are stated to have been rebuilt

during the year under review. A dividend of 6 per cent. for the year was paid on the ordinary shares.

Argentine Crop Estimates.—The first official forecast of the 1943-44 harvest was issued recently by the Argentine Ministry of Agriculture, and the production of the principal crops is estimated as follows: wheat, 8,500,000 tons; linseed, 1,800,000 tons; oats, 2,100,000 tons; and barley, 880,000 tons. Over the 1942-43 period, the wheat crop increased by 2,100,000 tons; the

British and Irish Railway Stocks and Shares

Stocks	Highest 1943	Lowest 1943	Prices	
			Feb. 8, 1944	Rise/ Fall
G.W.R.				
Cons. Ord.	65½	57½	61	— ½
5% Cons. Pref.	120½	108	119½	—
5% Red. Pref. (1950) ..	110½	106	109	—
5% Rt. Charge	137½	123½	131½	+
5% Cons. Guar.	135½	121½	129½	—
4% Deb.	118	107½	114	+
4½% Deb.	119	107½	115½	—
4½% Deb.	124½	116	122½	—
5% Deb.	138	127	131½	—
2½% Deb.	77	72½	74½	—
L.M.S.R.				
Ord.	34½	28	33	— ½
4% Pref. (1923)	66½	58	63	—
4% Pref.	80½	73	80	—
5% Red. Pref. (1955) ..	105½	102	103½	—
4% Guar.	107	98½	107½	—
4% Deb.	109½	103½	107	—
5% Red. Deb. (1952) ..	111½	108	109½	—
L.N.E.R.				
5% Pref. Ord.	12½	7½	9½	— ½
Def. Ord.	5½	3½	4½	— ½
4% First Pref.	66½	57½	62	—
4% Second Pref.	36½	30½	34	— ½
5% Red. Pref. (1955) ..	99½	93	99½	—
4% First Guar.	102½	94	100½	—
4% Second Guar.	93½	85½	93	— ½
3% Deb.	86½	78½	81½	+
4% Deb.	109½	101½	106½	+
5% Red. Deb. (1947) ..	106½	102	104	—
4½% Sinking Fund Red. Deb.	108	103½	104½	—
SOUTHERN				
Pref. Ord.	80	72½	77½	—
Def. Ord.	26½	20½	24½	— ½
5% Pref.	119½	106½	119	—
5% Red. Pref. (1964) ..	114	109½	114½	—
5% Guar. Pref.	136	122	129½	—
5% Red. Guar. Pref. (1957)	117	109½	114½	+
4% Deb.	117½	106	113	—
5% Deb.	137	126	128½	—
4% Red. Deb. (1962- 67)	112	106½	108½	—
4% Red. Deb. (1970- 80)	112	107	109½	+
FORTH BRIDGE				
4% Deb.	109	104½	105	—
4% Guar.	105	102½	102½	—
L.P.T.B.				
4½% "A"	125½	114	120½	—
5% "A"	133½	123	129½	+
3% Guar. (1967-72) ..	100½	97	99	—
5% "B"	124	114	120½	—
5% "C"	72	53	66	—
MERSEY				
Ord.	34½	27	34	—
3% Perp. Pref.	68	59½	66	—
4% Perp. Deb.	104	102½	103	—
3% Perp. Deb.	83	78½	79	—
IRELAND BELFAST & C.D.				
Ord.	9	6	7	— ½
G. NORTHERN				
Ord.	24½	16	23½	— 3
Pref.	—	—	43½	— 2
Guar.	—	—	62½	— 1
Deb.	—	—	82½	+
G. SOUTHERN				
Ord.	30	24	25½	— 2½
Pref.	30	11	51½	— 2½
Guar.	64	26½	64½	— 6½
Deb.	88½	51½	88½	+

§ ex-dividend

London and North Eastern Railway Company

NOTICE IS HEREBY GIVEN that the Twenty-first Ordinary General Meeting of the Proprietors of the London & North Eastern Railway Company will be held at Grosvenor House, Park Lane, London, W.1, on Friday, the third day of March, 1944, at 2 p.m., for the purpose of the general business of the Company.

NOTICE IS HEREBY FURTHER GIVEN that, in accordance with the Standing Orders of Parliament, an Extraordinary General Meeting of the Proprietors of the Company will be held at the same place on the same day at 3 p.m., or as soon thereafter as the

business of the Ordinary General Meeting is concluded, for the purpose of considering and, if thought fit, of approving the Bill intituled:—

"A Bill to authorise the London and North Eastern Railway Company to establish a savings bank for their employees and others and to amalgamate therewith the existing savings banks maintained by the Company; and for other purposes."

Dated this 9th day of February, 1944.

By Order,

W. H. JOHNSON,

Secretary.

Marleybone Station,
London, N.W.1.

OFFICIAL ADVERTISEMENTS

OFFICIAL ADVERTISEMENTS intended for insertion on this page should be sent in as early in the week as possible. The latest time for receiving official advertisements for this page for the current week's issue is 9.30 a.m. on the preceding Monday. All advertisements should be addressed to:—*The Railway Gazette*, 33, Tothill Street, Westminster, London, S.W.1.

linseed crop by 275,000 tons; the oats crop by 1,520,000 tons; and the barley crop by 530,000 tons.

Proposed Airport for Coruña.—Negotiations are stated to be in progress between the municipality of Coruña and the Spanish Air Ministry concerning the establishment of a commercial airport near Coruña. This scheme is said to be in connection with plans recently discussed for the operation of a Spanish trans-Atlantic airline, the European terminal of which would be Coruña, after the war.

A Swiss Exceptional Load.—An interesting example of an exceptional rail load in Switzerland was provided recently by the transport from Singen to Mendrisio, where it is to remain until the end of hostilities, of a diesel-electric railcar train weighing 125 tonnes, built for the 5 ft. 6 in. gauge Chilean State Railways. The journey took several days as the train, which temporarily had standard-gauge bogies fitted, could not pass any others nor run parallel with them. On some sections speed had to be restricted to about 6 m.p.h. The broad-gauge bogies and the engines of the Chilean train were conveyed in goods wagons.

Fire in L.M.S.R. Train.—As the 10.15 a.m. passenger train from Euston to Manchester (London Road) was passing Leighton Buzzard Station on February 6, the driver of a ballast train noticed fire in the third coach. He warned the signalman at Chelmscote Bridge, and the train was stopped a quarter-of-a-mile short of the bridge. The third and fourth coaches were isolated immediately. Help was summoned, and doctors, ambulance, and fire brigades were quickly on the scene. It is stated that seven persons suffered injury, of whom three were detained in hospital, and four treated but not detained.

Ilford Collision.—The Coroner for East Ham, Dr. P. B. Skeels, concluded on February 3 his inquiry into the deaths of 6 of the persons—the remaining 3 were members of the U.S. Forces—killed in the collision at Ilford, L.N.E.R., on January 16. Evidence was given to the effect that the colliding train had passed several signals at danger, including some colour-light signals, said to have been lighted at daylight voltage. The signalman at Seven Kings West signal box accepted the second train after receiving "train out of section" for the preceding one, in accordance with the fog block regulations. He endeavoured to attract attention by showing hand signals, as did other signalmen further on, but without avail. Evidence was further given to the effect that the first train had also passed signals at danger on entering Ilford station, and regarding the absence of fogmen and the working of a detonator placer. The jury returned a verdict of "accidental death" and expressed the opinion that the fog signalling arrangements in the district were not efficient and that the driver of the colliding train should have been proceeding

at a slower speed under the bad weather conditions prevailing.

Grand Canal Company (Eire).—The directors recommend a final dividend of 2½ per cent. on the ordinary shares, making, with the interim already paid, a total of 3½ per cent. for the year 1943. This compares with 2½ per cent. for 1942 and 1½ per cent. for 1941. The carry forward is £3,176, against £3,020 brought in.

Spanish Moroccan Railways.—During the year 1942, some 854,000 passengers and 73,000 metric tons of merchandise are stated to have been conveyed over the narrow-gauge Ceuta-Tetuan line in Spanish Morocco. Receipts from working amounted to 2,800,000 pesetas, but working expenditure was 3,600,000 pesetas. Plans are said to be under discussion for the connection of the line with the standard-gauge railway between Tangier and Fez owned by the Compagnie Franco-Espagnole du Chemin de fer de Tanger à Fez; it is stated that the cost of maintenance of the connecting link would be high, and it could be built only if a substantial subsidy were granted.

L.M.S.R. Net Revenue and Dividends.—The board of the London Midland & Scottish Railway Company on February 9 announced that the net revenue of the company for the year 1943 was £15,686,000, or an increase of £96,000 as compared with the total net revenue for the year 1942. After setting aside the sum of £400,000 for wartime contingencies, and with the addition of £95,000 brought forward from 1942, there was a total of £15,381,000 available for interest on debenture stocks, and dividends on other stocks. The board had decided to recommend the following dividends to be paid on March 15, and to carry forward £87,000 to 1944:—

4 per cent. guaranteed, 4 per cent. preference, and 4 per cent. (1923) preference stocks: at £2 per cent. actual, less income tax at 10s. in the £, making with the interim payment £4 per cent. for the year 1943.

Ordinary stock: at £2 10s. per cent. actual, less income tax, at 10s. in the £ for the year 1943.

Ammunition Explosion at Station.—A serious explosion occurred during the loading of ammunition at a railway station in the North of England on February 4. The station and other buildings were severely damaged. Among those killed were Mr. Walter Gibson, Stationmaster, two railway clerks (Mrs. Mary Richmond and Miss N. G. Richardson), and Lieutenant L. G. King, R.T.O. staff. The War Office issued the following statement on February 5: "The War Office regrets to announce that during the loading of Army and R.A.F. ammunition trucks at a northern railway station on Friday (February 4) an explosion occurred, causing casualties among Service and civilian personnel. According to present reports the casualties were: Service personnel, six killed, six injured; civilian

personnel, four killed, two injured. Passengers in a passing bus were injured by broken glass. Of the Service personnel killed, four were of the Army and two of the R.A.F., and all the injured Service personnel were Army. Next-of-kin of Service casualties are being informed. An inquiry into the circumstances of the explosion will be held."

T. & G.W.U. and Producer-Gas Vehicles.—The Transport & General Workers' Union is urging the Minister of War Transport to withdraw producer-gas-operated road passenger vehicles on the ground that they cause physical discomfort.

San Paulo Railway Weekly Returns Discontinued.—The San Paulo (Brazilian) Railway Co. Ltd. has issued the following statement: "The directors consider that the publication of the weekly gross receipts of the company may be misleading in view of the disproportionate increase in expenditure and the introduction of new labour regulations, and they therefore propose to discontinue publication of these figures, at any rate for the present."

Report on Failure of Locomotive Boiler.—The report by Mr. J. L. M. Moore to the Ministry of War Transport on the failure of a locomotive boiler on November 17, 1943, at Honeybourne, Great Western Railway, which resulted in the death from scalds and shock of Mr. J. W. Sirrell, a fireman, has now been presented. The engine concerned was of the 2-8-0 type, with bogie tender, built in the U.S.A.; the report states that the failure resulted from the crown of the steel firebox collapsing due to shortage of water. It adds that it has been proved, beyond all reasonable doubt, that the crews which handled the locomotive during various stages of the journey in question were misled by the gauge showing a false water-level, due to the steam valve being only partially open; and that the failure was due solely to shortage of water, and that no criticism can be made of the material or workmanship of the boiler itself, which proved to be of the highest order.

Contracts and Tenders

Below is given a list of orders placed recently by the Egyptian State Railways:—

Marconi's Wireless Telegraph Co. Ltd.: Receiving valves.

John Baker & Bessemer Limited: Tyres.

Lancashire Dynamo & Crypto Limited: Alternator and changeover switch.

North British Locomotive Co. Ltd.: Connecting rods.

Skefko Ball Bearing Co. Ltd.: Ball bearings.

British Oxygen Co. Ltd.: Gas welding rods.

Quasi-Arc Co. Ltd.: Welding materials.

Suffolk Iron Foundry (1290) Limited: Welding materials.

Phosphor Bronze Co. Ltd.: Welding materials.

Invicta Electrodes Limited: Electrodes, general purpose rods.

Railway Stock Market

Although there was continued firmness in British Funds, the stock and share markets have again experienced quiet conditions. In many sections yields are at levels which have little attraction, particularly as to industrial shares, which, however, are influenced in many cases by hopes that after the war dividends may return to the pre-1940 levels. Home railway junior stocks have again shown only small movements, and were inclined to ease before the L.M.S.R. dividend announcement. In the case of railway junior stocks it cannot be assumed that improved dividends will necessarily be in prospect after the war, but nevertheless there is no justification for them being valued on a basis showing more than double the yields on leading industrial shares. It is true the post-war outlook is not easy to assess, but that of the railways is not more uncertain than that of various other industries, the shares of companies connected with which now show only very moderate yields. Moreover, in the case of the railways, dividends at around current rates can apparently be expected to continue after the war until such time as there is final agreement on post-war transport organisation and control. In any case it can be expected that the relations between the various forms of transport will be more clearly defined, and special disabilities suffered in the past by the railways will be removed. Shortly before the war, it will be recalled, the railways were

well within sight of their "square deal" proposals. Sentiment as to junior railway stocks and also the equity shares of industrial companies has tended to be governed by the widespread disposition to await "second front" developments. Nevertheless, when markets show sustained improvement, railway junior stocks may very well have scope for good improvement in value, bearing in mind that they are the highest yielding equity securities in which there is invariably a "free" market. Because of the hope that some indication may be given as to the attitude of the railways as to post-war problems, the annual meetings, as mentioned previously in these notes, will be awaited with even more than usual interest on this occasion. The L.M.S.R. and L.N.E.R. meetings are to be held on March 3, that of the Great Western on March 8, followed by the Southern meeting on March 9. Although junior stocks have tended to be reactionary at the time of writing, movements on balance have again been small. Moreover, prior charges fully maintained recent gains, and there have been further small rises in a number of guaranteed and senior preference stocks, yields on which still appear attractive, bearing in mind the upward trend in gilt-edged and other high-class investment securities.

Great Western ordinary stock has eased on balance from 61½ to 61, but the 5 per cent. preference at 119½, the guaranteed stock at 129½, and the 4 per cent. debentures

at 114 held recent gains. Small fluctuations were shown in L.M.S.R. ordinary, which at 33 was fractionally lower compared with a week ago. L.M.S.R. 1923 preference was again 62½, and the senior preference kept the rise to 79½ and still yields 5 per cent. L.M.S.R. guaranteed attracted rather more attention on its investment merits, and strengthened to 104½. Whereas L.N.E.R. second preference reacted from 34½ to 33½, the first preference was slightly higher on balance at 61½, but still offers an apparently generous yield. Fractional gains were also recorded in L.N.E.R. first and second guaranteed stocks at 100½ and 92½ respectively. Elsewhere, Southern deferred was lower at 24½, compared with 24½. On the other hand, this railway's preferred stock was unchanged at 77½, and the 5 per cent. preference further improved to 119. London Transport "A" and "B" stocks were in request, but the "C" eased from 64½ to 66.

Argentine railway stocks moved lower. B.A. Gt. Southern ordinary was 12½, compared with 13½ a week ago, the 5 per cent. preference was 26½, compared with 27, and the 4 per cent. debentures were also half-a-point down at 61½. Elsewhere, United of Havana debentures further improved from 26 to 28½. Leopoldina debentures eased from 53 to 52. San Paulo ordinary moved down to 53. Canadian Pacific regained an earlier small decline.

Traffic Table and Stock Prices of Overseas and Foreign Railways

Railways	Miles open	Week ending	Traffic for week		No. of Weeks	Aggregate traffic to date			Shares or stock	Prices						
			Total this year	Inc. or dec. compared with 1941/2		Totals		Increase or decrease		Highest 1943	Lowest 1943	Feb. 8, 1944	Yield %			
						1942/3	1941/2									
South & Central America	Antofagasta (Chile) & Bolivia	834	30.1.44	28,240	—	£ 3,650	5	£ 149,400	£ 138,490	+	£ 10,910	Ord. Stk.	15½	10	12½	NI
	Argentine North Eastern	753	29.1.44	15,666	+	6,324	31	436,338	391,722	+	44,616	Ord. Stk.	7½	5	6	NI
	Bolivar	174	Dec., 1943	4,776	—	1,467	52	62,732	59,762	+	2,970	6 p.c. Deb.	22½	18	18½	NI
	Brazil	—	—	—	—	—	—	—	—	—	—	Bonds	23½	19	17	NI
	Buenos Ayres & Pacific	2,807	29.1.44	120,300	+	10,320	31	3,026,400	2,895,600	+	130,800	Ord. Stk.	8½	5½	7	NI
	Buenos Ayres Great Southern	5,080	29.1.44	209,040	+	240	31	5,18,860	4,05,580	+	503,280	Ord. Stk.	17½	9½	12½	NI
	Buenos Ayres Western	1,930	29.1.44	67,080	+	7,500	31	1,632,240	1,620,000	+	12,240	"	16	9½	11½	NI
	Central Argentine	3,700	29.1.44	167,628	+	10,992	31	4,430,463	4,107,271	+	423,192	"	10½	6½	9	NI
	Do.	—	—	—	—	—	—	—	—	—	—	Div.	4½	3	4	NI
	Cent. Uruguay of M. Video	972	29.1.44	34,329	+	1,476	31	1,019,244	753,521	+	265,723	Ord. Stk.	7½	4½	5½	NI
	Costa Rica	262	Dec., 1943	15,803	+	849	25	130,194	79,919	+	50,275	Stk.	16	12½	15	NI
	Dorada	70	Dec., 1943	29,000	+	8,000	52	272,607	194,705	+	77,902	1 Mt. Db.	96	92	93½	NI
	Entre Rios	808	29.1.44	21,300	+	3,984	31	6,7,116	561,204	+	45,912	Ord. Stk.	9	5½	6½	NI
	Great Western of Brazil	1,030	29.1.44	24,000	+	5,600	5	95,300	74,400	+	20,900	Ord. Sh.	59/9	24/4½	27/6	NI
	International of Cl. Amer.	794	Dec., 1943	\$696,368	+	\$50,157	52	\$7,285,649	\$6,200,530	+	\$1,085,119	"	—	—	—	NI
	Interoceanic of Mexico	—	—	—	—	—	—	—	—	—	—	1st Pref.	2½	1½	1½	NI
	La Guaira & Caracas	22½	Jan., 1944	6,640	—	2,795	5	6,640	9,435	—	2,795	5 p.c. Deb.	90	80	87½	NI
	Leopoldina	1,918	29.1.44	47,779	+	8,345	5	178,342	124,557	+	53,785	Ord. Stk.	7½	4	5½	NI
	Mexican	483	21.1.44	ps. 349,300	+	ps. 69,300	4	ps. 1,037,400	ps. 857,100	+	ps. 180,300	Ord. Stk.	1½	½	½	NI
	Midland Uruguay	319	Oct., 1943	17,778	+	2,984	50	65,802	50,786	+	14,916	"	—	—	—	NI
	Nitrato	382	31.1.44	6,394	+	972	5	11,832	12,151	—	319	Ord. Sh.	83/9	71/3	68/9	NI
	Paraguay Central	274	28.1.44	\$44,052	—	\$3,818	31	\$1,600,999	\$1,188,040	+	\$412,959	Pr. Li. Stk.	75	51½	69	NI
	Peruvian Corporation	1,059	Jan., 1944	111,444	+	25,677	31	7-8,631	583,434	+	165,197	Pref.	17½	10½	10	NI
	Salvador	100	Nov., 1943	c 94,000	+	c 10,000	21	c 429,000	c 320,000	+	c 109,000	"	—	—	—	NI
	San Paulo	153½	23.1.44	60,827	+	20,606	4	177,072	124,403	+	52,669	Ord. Stk.	71	57	53	NI
	Talita	160	Dec., 1943	7,725	+	2,042	26	35,225	31,086	+	4,139	Ord. Sh.	37/6	20/-	20/-	NI
	United of Havana	1,301	29.1.44	66,813	+	10,414	31	1,447,042	1,399,727	+	47,315	Ord. Stk.	8½	3½	3½	NI
	Uruguay Northern	73	Oct., 1943	1,438	—	14	17	5,548	4,757	+	791	"	—	—	—	NI
Canada	Canadian Pacific	17,034	31.1.44	1,682,400	+	478,600	5	4,767,200	3,765,600	+	1,001,600	Ord. Stk.	18	13½	16	NI
India	Baris Light	202	Dec., 1943	19,058	—	1,057	39	191,400	151,518	+	40,882	"	—	—	—	NI
	Bengal-Nagour	3,267	Dec., 1943	939,400	—	85,625	39	9,161,775	8,001,550	+	1,080,225	Ord. Stk.	104½	101½	103½	NI
	Madras & Southern Mahratta	2,939	31.12.43	295,425	+	43,673	31	7,997,969	6,431,570	+	1,066,399	"	110	106	108½	NI
	South Indian	2,349	20.12.43	199,410	+	24,449	37	5,321,558	4,562,445	+	750,113	"	105½	101½	108½	NI
Various	Egyptian Delta	—	31.12.43	21,529	+	2,813	41	439,257	343,745	+	95,512	Prf. Sh.	6½	2½	4½	NI
	Manila	—	—	—	—	—	—	—	—	—	—	B. Deb.	45	32	41½	NI
	Midland of W. Australia	277	Nov., 1943	30,114	—	10,384	21	165,805	159,912	+	5,893	Inc. Deb.	101	93	100	NI
	Nigerian	1,900	30.12.43	68,456	+	7,866	26	1,933,466	1,833,420	+	160,046	"	—	—	—	NI
	South Africa	13,291	4.12.43	935,918	+	139,543	36	29,678,819	27,634,695	+	2,014,114	"	—	—	—	NI
	Victoria	4,774	Sept., 1943	1,321,580	—	51,483	—	—	—	—	—	"	—	—	—	NI

Note. Yields are based on the approximate current prices and are within a fraction of ½. Argentine traffic is given in sterling calculated @ 16½ pesos to the £
 † Receipts are calculated @ 1s. 6d. to the rupee
 ‡ ex dividend